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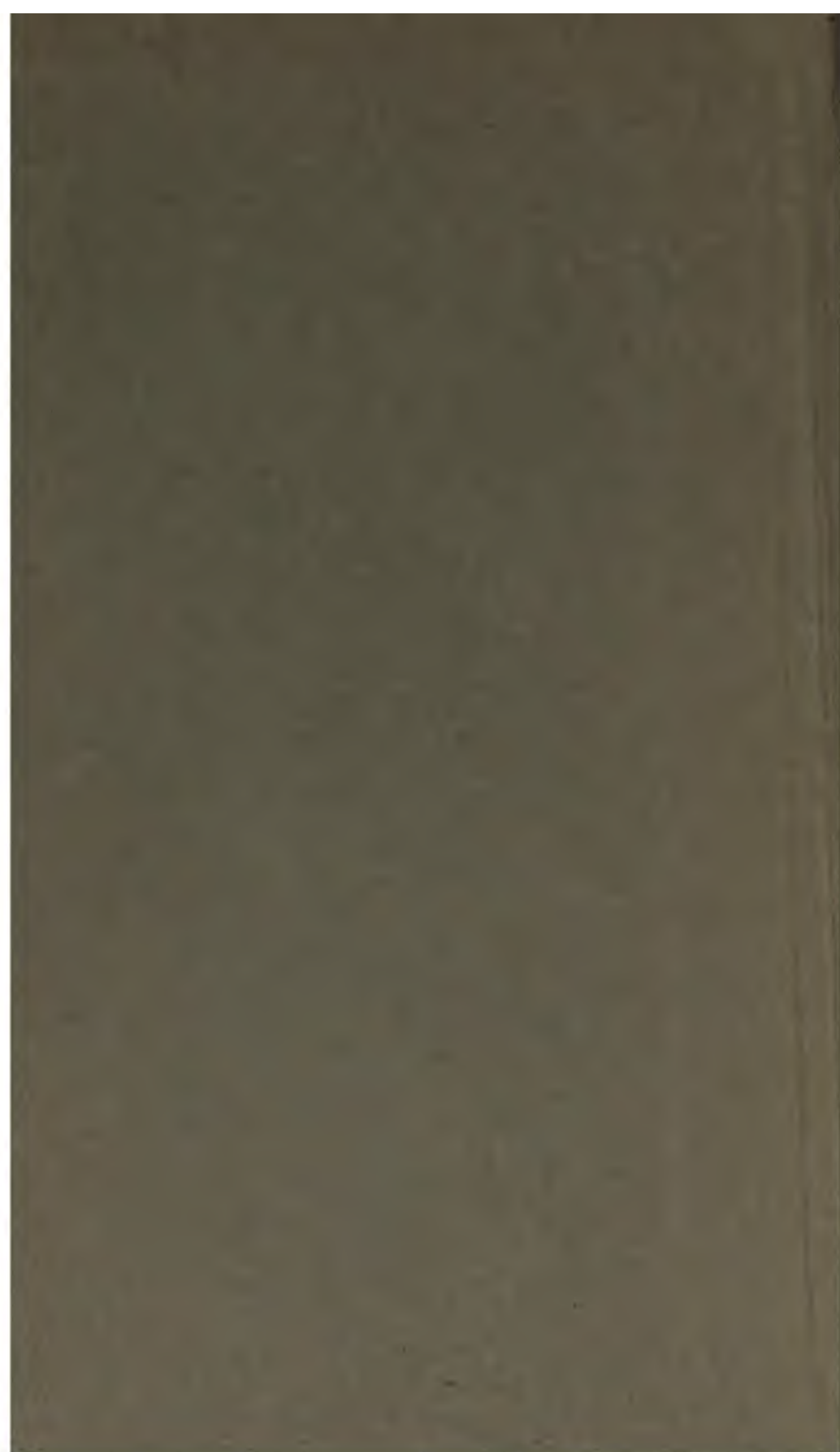
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Great Britain



Great Britain



THE
NAUTICAL ALMANAC
AND
ASTRONOMICAL EPHEMERIS
FOR THE YEAR
1834.

PUBLISHED BY ORDER OF
THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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PREFACE.

THE NAUTICAL ALMANAC and ASTRONOMICAL EPHEMERIS for the Year 1834, has been constructed in strict conformity with the recommendations of the ASTRONOMICAL SOCIETY of LONDON, as contained in their Report to the Right Honourable the Lords Commissioners of the Admiralty, a copy of which is inserted at p. xii; and will, it is believed, be found to contain almost every aid that the Navigator and Astronomer can require.

The several articles contained in this volume are fully explained, and their uses exemplified, at the end of the Work. It is only necessary here to state the Tables which have been used, and the Methods which have been adopted, in the general execution of the Work. Previously, however, it may not be uninteresting to give a brief statement of the Origin and Design of the Nautical Almanac, and its progress up to the present period.

The Nautical Almanac owes its existence to a Memorial presented to the Commissioners of Longitude, on February 9, 1765, by Dr. MASKELYNE; in which, after stating many facts and experiments to prove the utility of the Lunar Method of obtaining the Longitude at Sea, he concludes, "I flatter myself that the facts and experiments here recited will appear sufficiently vouched to you from the certificates and testimonies of the gentlemen who have made these trials; and I am authorized by them to say, that they apprehend that nothing is wanting to make this method generally practicable at Sea but a Nautical Ephemeris,—an assistance which they, with many more, hope for from this Board." The Memorial is given at length in "*New and Correct Tables of the Motions of the Sun and Moon*. By TOBIAS MAYER. To which is added, the Method of finding the Longitude improved. By the same Author. Published by order of the Commissioners of Longitude. London, 1770." page cxvii.

The following proceedings, consequent upon this Memorial, are extracted from the same Work:—"At a meeting of the Commissioners, appointed by Acts of Parliament for the Discovery of the Longitude at Sea, &c., which was held at the Admiralty, on Saturday, the 9th of February, 1765,

"A Memorial from the Rev. Mr. NEVIL MASKELYNE was read, setting forth to the effect following, viz. [*Here the substance of the Memorial recited.*]

"The following persons, who were attending by Mr. MASKELYNE's desire, viz.

Mr. JAMES LAUDER, Chief Mate of the Egmont,	} East India Ships,
Mr. JAMES STEPHENS, late Sixth of the Speaker,	
Mr. ROBERT SCOTT, Third Mate of the Speaker,	
Mr. JOHN HORSELY, Fourth Mate of the Glatton,	

were then, at his request, called in separately, and examined as to the utility and practicability of the above-mentioned Observations: they produced their Journals and some abstracts of the results of their Observations, and all agreed in testifying that they had determined the Longitude of their respective ships, from time to time, by Observations

of the Moon, taken in manner directed by the aforesaid Book,* and found the said Observations easily and exactly to be made; and that the Longitude resulting always agreed with the making of Land (near the time of making the Observations) to 1° ; that they could make the Calculations in a few hours, not exceeding four hours; and are of opinion, that if a Nautical Ephemeris were published, this method might be easily and generally practised by Seamen.—They then withdrew. The Board, having taken the matter into consideration, came thereupon to the following Resolution, viz. Resolved, That it is the opinion of this Board, upon the Evidence given of the utility of the late Professor MAYER's Lunar Tables, that it is proper the said Tables should be printed; and that application should be made to Parliament for power to give a sum, not exceeding 5000*l.*, to the widow of the said Professor, as a reward for the said Tables, part of which have been communicated by her since her husband's decease; and also for power to give a reward to persons to compile a Nautical Ephemeris, and for authority to print the same, when compiled, in order to make the said Lunar Tables of general utility."

In pursuance of this Resolution, MAYER's Widow received a reward of 3000*l.*; and the celebrated EULER the sum of 300*l.*, for having furnished the Theorems made use of by MAYER in his Theory; and the construction of a Nautical Ephemeris was intrusted to Dr. MASKELYNE.

The first Ephemeris, viz. that for 1767, was published in 1766, since which time the Work has been continued annually. The various Tables which have been employed in its construction, up to the period of Dr. MASKELYNE's death in 1811, are fully stated in the following extract from his last Preface, dated Sept. 25, 1810.

"MAYER's Tables of the Sun were used in the Computations of the NAUTICAL ALMANAC, from its first beginning in 1767 to that of 1804, inclusive. From the NAUTICAL ALMANAC of 1767 to that of 1776, both inclusive, or the first ten years, MAYER's Lunar Tables were made use of. But from the NAUTICAL ALMANAC of 1777 to that of 1788, both inclusive, or the next twelve years, the Moon's Place was inserted as calculated from new Tables, improved from MAYER's Tables, composed by the late Mr. CHARLES MASON, under my direction, from Calculations made by order of the Board of Longitude upon the Series of Lunar Observations made by the late Dr. BRADLEY, and published in the NAUTICAL ALMANAC of 1774; in which new Tables the Epoch of the Moon's Mean Longitude is $1''$ less, that of the Apogee is $56''$ less, and that of the Ascending Node $45''$ more than in MAYER's printed Tables, and the Equations are calculated to tenths of a second; and moreover one new Equation is introduced, whose argument is the Mean Distance of the Moon from the Sun's Apogee, and maximum is $16''\cdot4$. But from the NAUTICAL ALMANAC of 1789 to that of 1804, both inclusive, the Moon's Place was inserted as calculated from new Tables still farther corrected by Mr. MASON, entitled by him TABLES of 1780, as having been completed about that time, being rendered more exact than the former by the addition of eight Equations to the number in MAYER's Tables, taken from MAYER's Theory as to the Arguments, but settled as to the *Maxima* from the said Observations, and the whole being calculated to tenths of a second. However, the 18th Equation of these Tables was not used, as it was doubtful whether such an Equation should arise from the Theory of Gravity. Moreover, the Epochs of the Sun's Longitude in MAYER's Tables, and of the

* [*The British Mariner's Guide to the Discovery of the Longitude at Sea and Land, within a Degree, by Observations of the Distance of the Moon from the Sun and Stars, taken with HADLEY's Quadrant, By Dr. MASKELYNE.—S.*]

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Moon's Longitude and Mean Anomaly contained in MASON's Tables of 1780, were diminished at the rate of $10''$ in a hundred years, reckoned from the year 1756, in the calculations of the NAUTICAL ALMANACS from 1797 to 1804, both inclusive. Also the Longitudes of the Stars, used in computing their distances from the Moon, were carried on from Dr. BRADLEY's Catalogue of the year 1760, by subtracting $50''\cdot35$ from it, for each year between 1756 and 1760, to reduce that Catalogue back to the beginning of 1756, and then adding at the rate of $50''\cdot20$ for the Precession of the Equinoxes for each year elapsed after 1756, and applying the Correction of Secular Motion derived from the 44th of the folio Tables annexed to the First Volume of my Astronomical Observations."

"The Calculations of the Planets' Places were made for the EPHEMERIS from 1780* to 1804 by the Tables contained in the Second Edition of M. DE LA LANDE's Astronomy; and those of the Eclipses of Jupiter's Satellites were made from Mr. WARGENTIN's Tables, which make a part of those Tables; excepting the Eclipses of Jupiter's Second Satellite, which were computed from the EPHEMERIS of 1781 to that of 1804, from new Tables of Mr. WARGENTIN, published at the end of the NAUTICAL ALMANAC of 1779."

"In the year 1792 came out the Third Edition of M. DE LA LANDE's Astronomy, which he was pleased to make me a present of, containing new Tables of the Sun, Moon, and Planets, and of the Eclipses of Jupiter's Satellites. These Tables are constructed upon the best Observations, and upon the Physical Theories of M. LA GRANGE and M. DE LA PLACE, founded upon Sir ISAAC NEWTON's Principles of Gravity. The Tables of the Sun were constructed by M. DELAMBRE, entirely from my observations; the Tables of the Moon are the same with Mr. CHARLES MASON's Tables of 1780, only substituting M. DE LA PLACE's Acceleration instead of MAYER's, and diminishing the Mean Secular Motion by $23''$. The Tables of Mercury, Venus, and Mars were constructed by M. DE LA LANDE. The Tables of Jupiter and Saturn were constructed by M. DELAMBRE from the Theory of M. DE LA PLACE, who has accounted for the great inequalities of their motion to great exactness. The Tables of the Planet Herschel, called the Georgian Planet by us, were also calculated by M. DELAMBRE, according to the method of M. DE LA PLACE's Theory of Jupiter and Saturn. The Tables for calculating the Eclipses of Jupiter's Satellites were constructed by M. DELAMBRE upon M. DE LA PLACE's elaborate Theory, and agree with observation to surprising exactness. The learned world are much indebted to Mr. CHARLES MASON, M. LA GRANGE, M. DE LA PLACE, M. DE LA LANDE, and M. DELAMBRE, for these valuable improvements in the Astronomical Tables. May I flatter myself, that I also have contributed my share to this great work, by directing Mr. MASON in the improvement of the Lunar Tables by precise rules, and pointing out to him the Equations contained in MAYER's Theory, though omitted in his Tables, to be ascertained by BRADLEY's Observations, and by supplying a variety of Observations, from which, in conjunction with others, this great work has been completed?"

"In the year 1806, the French Board of Longitude published further improved Tables of the Sun by M. DELAMBRE; and improved Tables of the Moon by M. BÜRG, founded on M. DE LA PLACE's Theory, with the Maxima of the Equations stated according to my observations, and the Epochs principally from my observations and Dr. BRADLEY's. In these, besides M. DE LA PLACE's other improvements, is introduced a new Equation of the Moon's Longitude, of the long period of 180 years,

* [From 1767 to 1779, both inclusive, Dr. HALLEY's Planetary Tables were used.—S.]

depending at once on the Moon's Apogee and Node and on the Sun's Apogee, whose Maximum he states at $14''$, but of great consequence in settling the Mean Motions of the Moon. M. BÜRG has introduced six new Equations, in addition to eight Equations pointed out by MAYER's Theory, but whose Maxima had been settled by Mr. MASON, from Dr. BRADLEY's observations. These Tables had been long expected, and our Board of Longitude had anticipated the important use which they should be applied to in the calculations of the NAUTICAL ALMANAC."

"I was moreover furnished with several copies of the same, by the favour of the French Board of Longitude. These I immediately put into the hands of our Computers; and the publication of the NAUTICAL and ASTRONOMICAL ALMANAC for 1813 came out, for the first time, distinguished with this considerable improvement."

"The Epochs of these Tables having been adapted to the civil reckoning of time, and to the midnight with which the last day of the former year ends, and the new one begins, instead of the noon of the last day of the former year, as generally used in Astronomical Tables, I tried to adopt this method for the NAUTICAL ALMANAC, but afterwards thought it best to relinquish it, and to retain the Astronomical Time, fearing it would be attended with inconvenience, both in keeping the Register of the Greenwich Observations, and in puzzling the sailors by changing the method of using the NAUTICAL ALMANAC."

"The Places of the Planets, and the Times of the Eclipses of Jupiter's Satellites, beginning in the year 1805, have been calculated from the Tables annexed to the third edition of M. LA LANDE's Astronomy, and the Eclipses of the Satellites set down to mean time, instead of apparent time, as formerly."

"The Rev. SAMUEL VINCE, Plumian Professor of Astronomy at Cambridge, having had an early communication of the new French Tables, and of the Errata discovered in them by the comparer of the NAUTICAL ALMANAC and myself, and having also noted several Errata himself, has lately republished them in a neat, elegant, and accurate manner, according to Astronomical Time, together with the Tables of the Planets (taking those of Mars from M. LE FRANCAIS LA LANDE's Tables in the *Connoissance des Temps* of the 12th year,) and the Eclipses of Jupiter's Satellites from the third edition of M. LA LANDE's Astronomy. These will be used for the calculations of the NAUTICAL ALMANAC for succeeding years."

"All the Articles of the EPHEMERIS were computed by two separate persons, and examined by a third, except the Moon's Longitude, Latitude, Right Ascension, Declination, Semidiameter, and Parallax, with its Proportional Logarithm, which, for Noon, were computed by one person, and for Midnight by another; and the truth of these Calculations ascertained by means of Differences, which, for the Moon's Longitude, were carried as far as the Fourth Order."

The NAUTICAL ALMANAC for the years 1814 to 1820, both inclusive, appears to have been computed entirely from the Tables in the third volume of Professor VINCE's Astronomy. BURCKHARDT's Tables of the Moon, published by the French Board of Longitude at Paris in 1812, were first used instead of BÜRG's, for the year 1821. In the year 1824, the Eclipses of Jupiter's Satellites were deduced from DELAMBRE's new Tables*. With these two exceptions, VINCE's Tables continued to be used to the end of the year 1832.

In the NAUTICAL ALMANAC for 1832 are found "*Recalculated Elements of DELAMBRE's new Tables for calculating the Eclipses of Jupiter's Satellites*, by Mr. HENRY

* *Tables Ecliptiques des Satellites de Jupiter, d'après la Théorie de M. le Marquis de Laplace, et la totalité des Observations faites depuis 1662 jusqu'à l'an 1802. Par M. DELAMBRE. Paris. 1817.*

JENKINS," as well as a Table of Corrections, founded upon these recalculated Elements, for the Eclipses of Jupiter's Satellites in the years 1830, 1831, and 1832.

The Eclipses of Jupiter's Satellites for 1833 were computed from Mr. JENKINS's improved epochs.

VINCE's Solar Tables were used for 1833, but with corrections deduced from Professor AIRY's comparison of DELAMBRE's Tables of the Sun with 1200 observations made with the new Greenwich Transit. In the EPHEMERIS for 1832, corrections derived from the same source were given, to be applied to the Sun's places for 1830, 1831, and 1832.

Various valuable papers chiefly relating to Nautical Astronomy have from time to time been appended to the NAUTICAL ALMANAC; some of which have been republished under the title of "*Selections from the Additions that have been occasionally annexed to the NAUTICAL ALMANAC, from its commencement to the year 1812;*" (London, 1813,) but with the exception of the introduction of the Apparent Places of 24 principal Stars in the NAUTICAL ALMANAC for 1822, which were increased to 60 in 1827, and Elements for predicting the Occultations of Fixed Stars by the Moon, &c., the contents of the Work, from its commencement in 1767 to 1833 inclusive, appear to have undergone little, if any, variation.

In the year 1830, reference was made by the Lords Commissioners of the Admiralty to the Astronomical Society, to consider if any, and what, improvements could be made in the NAUTICAL ALMANAC. The Council presented their Report upon the subject in November of the same year, which was immediately approved by their Lordships, and ordered to be carried into effect for the year 1834. (See page xii.)

The present volume, besides a few additions, contains every article recommended in the Report, excepting only the periods of the Maximum and Minimum of the Light of the Variable Stars, for which the necessary data could not be procured.

The Ephemeris of the Sun has been computed from CARLINI's Solar Tables* (assuming Greenwich to be $0^h 36^m 45^s$ West of Milan), with Professor BESSEL's corrections, and the Nutations adopted in the Astronomical Society's Tables. The computations were made independently for every Mean Noon of the Year.

CARLINI's Tables are founded on the same Elements as those of DELAMBRE published in 1806, and differ only in their arrangement. CARLINI assumes for the unit of each argument its respective daily motion, and by this arrangement gives considerable facilities for the construction of an Ephemeris. For the computation of a single place of the Sun, CARLINI's Tables possess little, if any, advantage over those of DELAMBRE.

BESSEL's corrections of CARLINI's Tables are given in Nos. 133 and 134 of the *Astronomische Nachrichten*. He adopts BURCKHARDT's Masses of Venus and Mars, which are less than those of DELAMBRE, the first in the proportion of 1 to 0.8875; the second in the proportion of 1 to 0.95; and a Mass of the Moon $= \frac{1}{83}$ that of the Earth, which is less than that of DELAMBRE, viz. $\frac{1}{88}$, in the proportion of 1 to 0.8: hence the Equations in CARLINI's Tables IX, XV, and XXVI, require to be each multiplied by 0.8875; those in Tables XI and XVII by 0.95; and the Equations in Tables V, VI, XIV, and XXV by 0.8, according to BESSEL's rule.

The true Longitude and Radius Vector thus derived, require to be further corrected, on account of BESSEL's new determination of the Elements of the Solar Tables, from a comparison of his own observations with those of BRADLEY.

* *Esposizione di un nuovo metodo di costruire le Tavole Astronomiche Applicato alle Tavole del Sole.* Di FRANCISCO CARLINI, Milano. 1810.

If t denote the number of years after 1800, the corrections to be applied to DELAMBRE's Elements are,

To the Mean Longitude - - - + $2''.65 + t.0''.144477$

To the Longitude of the Perigee - + $64''.99 - t.0''.41015$

To the Excentricity - - - - - $-0.0000024625 - t.0.00000001786$.

The corrections of the *True* Longitude, and Radius Vector, depending upon these alterations, are of the form $a + bt$ and $a' + b't$, and those Values of the Co-efficients a, b, a', b' have been adopted, which are given in BESSEL's Table IV.

By the advice of Professor AIRY, BESSEL's corrections have been adopted in preference to his own, because they are exhibited in printed Tables, and can be referred to; and this principle has been acted upon generally throughout the Work, preference having, in all possible cases, been given to printed authorities.

The results of a comparison of the corrected Tables with Observations, may be seen in Nos. 172, 179, and 217 of the *Astronomische Nachrichten*.

As the Apparent Places of the 100 Stars were directed to be founded upon the Nutations used in the Astronomical Society's Tables, the same Nutations have been adopted for the Sun, Moon, and Planets throughout this Work, in preference to those of BESSEL, for the sake of consistency.

The Lunar and Solar Nutations, in Longitude and the *Apparent* Obliquity of the Ecliptic, have been deduced from BAILLY's Tables XXI and XXII, in the formation of which the Constants used are those of the Astronomical Society's Tables. (*Astronomical Tables and Formulæ*. By FRANCIS BAILLY. London, 1827.)

If we denote the several Equations which enter into the Sun's Longitude, Latitude, and the Radius Vector, by the numbers of CARLINI's Tables, the results given in this Ephemeris, for Mean Noon, are as follow:

Sun's Longitude - - = II + III + IV + 0.8 (V + VI) + VIII + 0.8875 (IX) + X
+ 0.95 (XI) + XII + Nutations + $a + b(t - 1800)$

Sun's Latitude - - = 0.8 (XXV) + 0.8875 (XXVI) + XXVII

Log. Radius Vector = XIII + 0.8 (XIV) + 0.8875 (XV) + XVI
+ 0.95 (XVII) + XVIII + $a' + b'(t - 1800)$

The Semidiameter of the Sun, at the Earth's Mean Distance, has been taken = $16' 0''.9$, as determined by BESSEL, from 1698 transits, in which both limbs had been observed at Königsberg, between the Years 1820 and 1828, with REICHENBACH's meridian circle. (BESSEL *Tab. Reg.* page L.)

The Sidereal Time of the Sun's Semidiameter passing the Meridian has been obtained from Table XII. of BESSEL's *Tab. Reg.*

The Equatorial Horizontal Parallax of the Sun, at the Earth's Mean Distance, is = $8''.5776$, as deduced by Professor ENCKE, from the Transits of Venus, in 1761 and 1769. (*Der Venusdurchgang von 1769, &c.* Gotha, 1824. Page 108.)

The Constant of Aberration = $20''.36$. (Preface to *Ast. Soc. Cat.* page x.)

The Sidereal Time, at Mean Noon = $\frac{\text{Sun's Mean Longitude} + \text{Nutations}}{15}$. According to BESSEL (*Tab. Reg.* page XXIV.), the Mean Longitude of the Sun, at Paris Mean Noon, of January 0^d of the year 1800 + t is

$279^\circ 54' 1''.36 + t.27''.605844 + t^2.0''.0001221805 - f.14' 47''.083$,

where f denotes, for the 19th century, the number of years from the preceding bissextile year. Assuming the Meridian of Greenwich to be $9^m 21'.6$ West of that of Paris, and altering the epoch to the Mean Noon of January 1 of the year 1800 + t , the Sun's Mean Longitude (M) for the meridian of Greenwich is found equal to

$280^{\circ} 53' 32''.75 + t . 27'' 605844 + t^2 . 0''.0001221805 - f . 14' 47''.083$,
and we have for the Mean Noon of any day (n) of the year $1800 + t$,

$$\text{Sidereal Time} = \frac{M}{15} + n . 3^m 56^s . 555348 + \text{Nutations in R. A.}$$

The Mean Obliquity of the Ecliptic has been taken $= 23^{\circ} 27' 39''.26$, for January 1, 1834, and the Mean Annual diminution $= 0''.457$. (BESSEL, *Tab. Reg.* page 9.)

The Places of the Moon have been derived from BURCKHARDT's *Tables de la Lune*, (Paris, 1812), with a difference of Meridians $= 9^m 21^s$, and the Nutations of the Astronomical Society. They have been computed independently for every Mean Noon and Midnight of the Year; and wherever the variation of the Equations appeared to render such a correction necessary, second differences have been taken into account.

An Ephemeris of the Moon for the year 1834, calculated upon the Tables of M. LE BARON DAMOISEAU, has been published by Professor SCHUMACHER with his Ephemeris of Planetary Lunar Distances. Astronomers will thus be enabled to put the merits of the Tables of BURCKHARDT and DAMOISEAU to the strict test of observation.

All the Calculations relating to the Planets Mercury, Venus, Mars, Jupiter, Saturn, and the Georgian, have been performed under the direction of Professor SCHUMACHER, of Altona; and those for the Minor Planets under the direction of Professor ENCKE.

The Geocentric, as well as the Heliocentric Positions, are reckoned from the true Equinox; the former are affected by aberration, and immediately comparable with instrumental results.

The Places of Mercury, Venus, and Mars, have been derived from LINDENAU's Tables* of those Planets, assuming Greenwich to be $42^m 56^s$ West of Seeberg.

Jupiter, Saturn, and the Georgian, have been computed from the new Tables of BOUVARD.†

The Semidiameters of the Planets at the Mean Distance of the Earth from the Sun, have been assumed as follow, viz. that of Mercury $3''.23$; Venus $8''.25$; Mars $4''.57$; Jupiter $93''.37$; Saturn $88''.72$; and that of the Georgian $37''.20$.

The Eclipses of Jupiter's Satellites have been computed from DELAMBRE's new Tables, as before, using the corrected epochs given in the Nautical Almanac for 1832.

The Configurations of the Satellites were deduced from the Tables of DELAMBRE given in the *Conn. des Temps* for 1808, using however, in all cases, the computed geocentric conjunctions and the mean daily motions of the Satellites derived therefrom.

The Latitude of the fourth Satellite of Jupiter exceeds the semidiameter of the planet at every conjunction in the year 1834; consequently the Satellite can neither be occulted by, nor pass over the disc of, the planet. When therefore either of these

* *Investigatio nova Orbitæ a Mercurio circa Solem descriptæ, accedunt Tabulæ Planetæ ex Elementis recens repertis et Theoria Gravitatis illust. De Laplace constructæ. Auctore BERNHARDO DE LINDENAU. Gothæ, 1813. 4to.*

Tabulæ Veneris novæ et correctæ ex Theoria Gravitatis clarissimi De Laplace et ex Observationibus recentissimis in specula Astronomica Seebergensi habitis erutæ. Auctore BERNHARDO DE LINDENAU. Gothæ, 1810. 4to.

Tabulæ Martis novæ et correctæ ex Theoria Gravitatis clarissimi De Laplace et ex Observationibus recentissimis erutæ. Auctore BERNHARDO DE LINDENAU. Eisenberg, 1811. 4to.

† *Tables Astronomiques publiées par le Bureau des Longitudes de France contenant les Tables de Jupiter, de Saturne et d'Uranus, construites d'après la Théorie de la Mécanique Céleste: par M.A. BOUVARD. Paris, 1821.*

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phenomena is indicated in the Tables of Configurations, it is to be understood that the Satellite is *above* or *below* the planet.

The Occultations and Transits of the Satellites have been computed with the aid of the Tables given in the Berlin Ephemeris for 1834. The portion of the projected Orbit of each Satellite intercepted by the Disc of Jupiter has been deduced by assuming the compression of the Planet = $\frac{1}{15}$.

The Transits of the Shadows of the Satellites over the Disc of Jupiter have been deduced from the following formulæ: The Mean Times of the Immersion and Emergence at the *preceding* Eclipse being denoted respectively by I_p and E_p , and those at the *following* Eclipse by I_f and E_f .

$$\text{Mean Time of Ingress} = \frac{I_p + I_f}{2} + \text{correction.}$$

$$\text{Mean Time of Egress} = \frac{E_p + E_f}{2} + \text{correction.}$$

The *correction* depends upon the irregular motion of some of the principal Equations involved in the computation of the Eclipses, and has been taken from MS. Tables, for each Satellite, constructed by the late Mr. HENRY JENKINS.

With regard to the Catalogue of the 100 Fixed Stars, the only necessary addition to the explanation given at pages 366, 367, is that the Mean Places furnished by Mr. POND are the result of his latest determinations.

The Moon-Culminating Stars were selected by Mr. FRANCIS BAILY.

The Mean Places of the Stars for this List, as well as those for the Occultations, have been taken in order of preference, 1. From the Catalogue of the 100 Stars in this Book. 2. From Mr. POND's printed Catalogue of 720 Stars. 3. From the Astronomical Society's Catalogue. The reduction of the Mean to the Apparent Places has been performed by means of the Constants given in the last Catalogue.

The duplicate computations of the Elements of Occultations were performed gratuitously by Mr. MACLEAR of Biggleswade.

The Tides at London Bridge are derived from Tables calculated by Mr. DESSIOU, under the direction of Mr. LUBBOCK. These Tables were originally founded upon a mass of Observations made at the London Docks, which Mr. LUBBOCK has discussed in a paper, printed in the Phil. Trans. for 1831. In this paper Mr. LUBBOCK had confined his attention to the Observations made between New and Full Moon: and it would appear, from a comparison of the results deduced from his Tables with Observations made at the London Docks in the months of January, February, and March, 1832 (Phil. Trans. for 1832), that considerable discrepancies existed between the predicted and the observed Tides. Mr. DESSIOU has corrected his former Tables, by incorporating the results derived from about 6000 additional Observations with the previous results, and these corrected Tables have been adopted.

The Tables for finding the Latitude of a place by observations of the Pole Star (α Ursæ Minoris), at any hour of the day, are similar to those published annually by Professor SCHUMACHER, in his Ephemeris of the planetary distances, and are founded on the following formula:

$$l = a - p \cos h + \frac{1}{2} \sin 1'' (p \sin h)^2 \tan a$$

where l denotes the latitude

a — the true altitude of the Star

p — the apparent polar distance, expressed in seconds of arc

h — the horary angle of the Star = $S - \alpha$; S being the sidereal time of observation, and α the right ascension of the Star.

Table I contains the value of the *second* term, ($p \cos h$) or the *first correction*; assuming, as *mean* values, $p = 94' 30''$, and $\alpha = 15^\circ 10'$.

Table II contains the value of the *third* term, ($\frac{1}{2} \sin 1'' (p \sin h)^2 \tan \alpha$) or the *second correction*, using the same *mean* quantities as in Table I.

Table III contains the *third* correction, which is *special* for the year 1834; and depends upon the difference between the true and assumed values of p and α .

A fourth term ($-\frac{1}{3} \sin^2 1'' (p \cos h) (p \sin h)^2$) has been omitted, its greatest value being only $0''.55$.

The whole of the Computations, those of the Planets only excepted, have been made in duplicate, and the results compared by a third person. Independent calculations have subsequently been made as a check upon each of the Computers, and the results finally examined by means of Differences. The Places of the Planets have likewise been verified by independent calculations, and by means of differences.

The Places of the Sun were computed by MESSRS. FARLEY and RUSSELL, under the superintendence of the Rev. RICHARD SHEEPSHANKS, to whose zeal and ability I am on this, as on every other occasion, greatly indebted. The places of the Moon are the production of various computers: but the careful comparison and minute examination of the duplicate computations have been conducted by MESSRS. ALGER and MIDDLEMIST, whose patience and fidelity in the execution of this most tedious task, it is impossible too highly to appreciate. All the calculations relating to the Occultations and Transits of Jupiter's Satellites were performed under the direction of Mr. WOOLHOUSE, who has composed a complete set of Tables for determining these Phenomena, as well as the Configurations and Transits of the Shadows, with greater facility and accuracy than has hitherto been attempted. These Tables will be published with the Nautical Almanac for 1835. The Eclipses of the Sun and Moon were likewise executed by Mr. WOOLHOUSE, assisted by Mr. GODWARD.

The calculations of the Lunar Distances have been superintended by Mr. FARLEY: The examination of the calculations generally has also been performed by Mr. FARLEY, in conjunction with Mr. GODWARD. The final test by means of differences, has, in all cases whatever, been entrusted to Mr. WOOLHOUSE.

With respect to the Type, a new cast of Figure has been made expressly for this Work, wherein the uniform size of the Figures, which has been adopted for many years past, has been abandoned; and the old system revived of giving the Figures 6, 7, 9, a greater length than the rest; whereby it is hoped that the tabular values will be more distinct and legible, and less liable to cause confusion.

The present work affords a good specimen of what may be accomplished in the way of printing by steam: 7,000 impressions of the work have been taken, and in every case, the first, the middle, and the last impression, have been carefully compared with the press sheet, and in two instances only were the slightest variations detected. It is due to Mr. CLOWES to state, that he has spared neither expense nor exertion to facilitate the progress of this National Work through the press.

Nautical Almanac Office, Somerset House,
July 19, 1833.

W. S. STRATFORD, Lieut. R.N.,
Superintendent of the Nautical Almanac.

* * * The Nautical Almanac for 1835 is now in the Press, and will be published before the end of the present Year: that for 1836 will immediately follow, and the Press will now be kept in constant action until the Work shall be FOUR YEARS in advance

REPORT

OF

THE COMMITTEE OF THE ASTRONOMICAL SOCIETY OF LONDON,

Relative to the Improvement of the Nautical Almanac: adopted by the Council, November 19, 1830; approved by the Right Honourable the Lords Commissioners of the Admiralty, and ordered by them to be carried into effect.

NAMES OF THE COMMITTEE.

*Professor Airy.
Right Hon. Lord Ashley.
*C. Babbage, Esq.
*F. Baily, Esq.
P. Barlow, Esq.
*Capt. F. Beaufort, R.N.
Capt. F. W. Beechey, R.N.
Lieut.-Gen. Sir T. M. Brisbane, K.C.B.
Right Rev. Bishop of Cloyne.
Lieut.-Colonel Colby, R.E.
A. De Morgan, Esq.
Hon. Capt. Dundas, R.N.
Davies Gilbert, Esq., P.R.S.

Dr. Gregory.
Capt. Basil Hall, R.N.
Professor Hamilton.
T. Henderson, Esq.
*J. F. W. Herschel, Esq.
Capt. Heywood, R.N.
Capt. James Horsburgh.
Rev. Dr. Inman.
Capt. Kater.
Dr. Lee.
J. W. Lubbock, Esq.
T. Maclear, Esq.
Rev. G. Peacock.
Rev. Dr. Pearson.

*J. Pond, Esq.
E. Riddle, Esq.
Professor Rigaud.
*Rev. Dr. Robinson.
Rev. R. Sheepshanks.
Capt. Shireff, R.N.
Capt. W. H. Smyth, R.N.
*Sir James South, *President*.
*Lieut. W. S. Stratford, R.N.
*Professor Struve.
Dr. Tiarks.
E. Troughton, Esq.
J. Wrottesley, Esq.

N.B.—Those Members, to whose names an asterisk is prefixed, formed the Sub-Committee.

ASTRONOMICAL SOCIETY OF LONDON.

The COMMITTEE appointed by the COUNCIL of the ASTRONOMICAL SOCIETY to take into consideration the Letter addressed to them by the Right Honourable the LORDS COMMISSIONERS of the ADMIRALTY, relative to the improvement of the NAUTICAL ALMANAC, have agreed on the following

REPORT.

1. The attention of the Committee was, in the first instance, directed to a subject of general importance, as affecting almost *all* the results in the Nautical Almanac; viz., whether the quantities therein inserted should in future be given for *apparent* time (as heretofore), or for *mean solar* time. Considering that the latter is the most convenient, not only for every purpose of Astronomy, but also (from the best information they have been able to obtain) for all the purposes of Navigation; at the same time that it is less laborious to the computer, and has already been introduced with good effect into the national Ephemerides of Coimbra and Berlin, the Committee recommend the abolition of the use of *apparent* time in all the computations of the Nautical Almanac; excepting only the place, &c. of the sun at the time of his transit over the meridian, which must necessarily be computed for the time of *apparent* noon; but which, by the arrangement proposed in the accompanying Specimen (and which the Committee request may be considered as part of this Report), can never be mistaken for his place as computed for *mean* noon. The Committee are aware that in recommending this important change in the mode of reckoning time, in all computations connected with nautical astronomy, it may appear to some persons that a temporary inconvenience may be experienced: they trust, however, that, upon more mature consideration, this will be found not likely to take place. It is true that, when the Nautical Almanac was first formed, *apparent* time was the only mode of reckoning that could be properly introduced; as the seaman had no other method of obtaining his time than by observations of the *sun*; nor any other mode of carrying it on from day to day than by ordinary watches. Other modes, however, are now resorted to for obtaining the time; and the great perfection of chronometers and

their extensive use in the sea service have led to the more general use and adoption of *mean time*; which has now become easy and familiar in many of the most common nautical problems, and equally convenient in all. Moreover the Committee are of opinion that there is a great advantage in assimilating the practical operations in nautical astronomy with those pursued in the observatory; with which in fact they become identified, the moment the navigator commences the requisite observations on shore in order to verify the rate of his chronometers, or to determine the accurate position of his place. This change has indeed, for many years past, been made in the eclipses of Jupiter's satellites: and, from the necessary use, in many cases, of astronomical problems, must sooner or later be more generally introduced: and no time appears so well adapted for such an alteration as the present, when a general revision of the work is in contemplation. And should this alteration be adopted, the Committee recommend that the words *MEAN TIME* be inserted at the head of every page where it may be applicable, in order that the seaman may be constantly apprized of the change which has been made.

2. The next point of consideration was of minor importance, and of a less general nature; viz. the proposal to abolish the use of *signs*, as indicating arcs of 30° in the division of the circle. With the view therefore of preserving uniformity in the arrangement of the values in the Nautical Almanac, and considering it in most cases more convenient in practice, the Committee recommend that the use of signs should be abolished also, and that the degrees should in all cases be reckoned from 0 to 360.

3. The Committee having before them a printed specimen of the monthly arrangements of the articles forming the Nautical Almanac for the year 1833, forwarded to the Council by the Lords Commissioners of the Admiralty, and also having before them a copy of the Nautical Almanac and of the Supplement for the present year (1830), next proceeded to examine and discuss *seriatim* the various parts into which the work is divided: and, having agreed on certain preliminary arrangements, appointed a *Sub-Committee* to examine them more in detail, as well as to examine and digest the various hints and suggestions which had been forwarded to them, not only by members of their own body who were unable to attend the meetings, but likewise by other correspondents, relative to this subject. The *Sub-Committee* having made a report of their labours, it was ordered to be printed; and a copy of the same having been forwarded to each member of the Committee, a distant day was appointed for their taking the same into consideration: by which means every opportunity and facility have been afforded for the most ample and open discussion of the several points in question. The final result of their deliberations will be seen from the following summary of the alterations and additions proposed and recommended; and also from the Appendix to this Report, which contains a synoptical view of *all the articles* proposed to be inserted in the Nautical Almanac.

4. And here perhaps it may be proper to remark, that, although in these discussions the Committee have constantly kept in view the principal object for which the Nautical Almanac was originally formed, viz., the promotion and advancement of *nautical astronomy*, they have not been unmindful that, by a very slight extension of the computations, and by a few additional articles (of no great expense or labour), the work might be rendered equally useful for all the purposes of *practical astronomy*. For the Committee cannot omit this opportunity of expressing their decided opinion, that it is not by the mere helps with which the seaman is furnished for the purpose of determining the position of his vessel *at sea*, that the full intent and purpose of what is usually called *nautical astronomy* are answered; since this object is a *part* only of that comprehensive and important subject, and may be effected by a very cheap publication, and without the use of very expensive instruments. An equally important and more difficult portion of it consists in the exact determination of the position of various interesting points on the surface of the earth (equally essential and almost solely applied to the purposes of *navigation*),—such as remarkable headlands, ports, and islands; together with the general trending of the sea-coast between well-known harbours,—and which may properly be designated by the name of *nautical geography*: this can only be effectually and properly executed by methods not available on board a ship, and by delicate instruments placed firmly on solid ground. And the observer in such cases requires all the astronomical aid which can be afforded him from the best tables, arranged in the most convenient form for *immediate* use. This was evidently Dr. Maskelyne's view of the subject, when he first proposed the formation of the Nautical Almanac, as appears from his "Explanation and Use of the Articles" annexed to that work: and the propriety and accuracy of his opinion have been confirmed by the repeated wants and demands of those distinguished navigators

who have been employed in several recent scientific expeditions. There are moreover many individuals in various parts of the world, attached to the science of astronomy, who, by the encouragement and facilities thus given, render considerable assistance to the improvement of astronomy and geography by their exertions: and neither private nor national observatories, on which many thousands are annually expended, can proceed with activity or good effect, unless some aid of this kind is afforded them.

5. Impressed with these considerations, the Committee proceeded to the discussion of the subjects in question. And although, in the course of this investigation, some objects of minor importance have presented themselves, the Committee have not thought them unworthy their attention: since they considered it desirable that as perfect an arrangement and disposition as possible of *all* the parts should be effected at one and the same time, not only in order to avoid the frequency of alterations, which must in all cases be attended with inconvenience and disadvantage, but more especially that the work may at *once* appear in its most approved form, and thus more decidedly mark the epoch of the alterations that have been introduced.

6. To the class of minor subjects above mentioned belong the arrangement of the *calendar*, and the various articles which usually occupy the first page of each month. The Committee will advert more at large to this subject in the sequel; and at present merely observe that they recommend the abolition of the column entitled "Sundays and other remarkable days:" and a partial suppression, accompanied with a totally new arrangement, of the column entitled "Other phenomena;" in order to make room for more important matter.

7. With respect to the other more essential parts of the Almanac (in the order in which they stand) the Committee recommend that the computations of the *Sun's* longitude, right ascension and declination, together with the equation of time (the three latter computed for *apparent* noon, as well as *mean* noon), should be extended to one place of decimals further than in the printed specimen for 1833 above alluded to: that the hourly difference in right ascension be added, and that the *hourly* difference in declination and in the equation of time be substituted for the *daily* difference. And they suggest the propriety of having a running correction at the bottom of the page, for converting (from sidereal to mean time) the interval of the time in which the sun's semidiameter passes the meridian. They also recommend an additional column, containing the "Mean solar time of the transit of the first point of Aries," calculated to 2 places of decimals: together with a column containing the fractional part of a year, for every day in the year, to 3 places of decimals: as well as the retention of the column containing the days of the year in numerical order from Jan. 1 to Decem. 31. On the other hand they recommend the suppression of 1 place of decimals in the sun's semidiameter, as the values would then be sufficiently exact for every purpose required: also the suppression of the time of the rising and setting of the sun and moon, as being for the most part wholly useless to the navigator, and of no essential service to the astronomer.

8. They further recommend that the computations of the *Moon's* longitude, latitude, declination, equatorial horizontal parallax, horizontal semidiameter, age, and time of passing the meridian, be extended to 1 place of decimals further than in the before-mentioned specimen: and that the time of the moon's perigee and apogee, to the nearest hour, be inserted at the foot of one of the pages. Whilst on the subject of the moon's place, the Committee cannot omit the opportunity of expressing their great approbation of the introduction, by Mr. Pond, of the right ascension and declination of the moon for *every third hour* into the Nautical Almanac for 1833; a measure which affords accuracy and convenience to the mariner on many occasions. The Committee have had much discussion on the propriety and advantage of extending those places still further to *every hour*: and, considering the very extensive use to which they may be practically applied in various parts of nautical astronomy, they have finally decided to recommend that important addition; as well as a column containing the differences of declination for 5 minutes, if it can be conveniently introduced.

9. The attention of the Committee was next called to the form in which the positions of the *Planets* are given in the printed specimen above alluded to, which they consider to be too much abridged to be of any essential service either to the astronomer or the navigator. The Committee are aware that the positions of the four principal planets (Venus, Mars, Jupiter, and Saturn) for every day in the year, are annually published in English,

and partly at the expense of this government, by the Royal Danish Sea-Chart Office at Copenhagen; together with the distances of those planets from the moon, for every third hour; under the direction of Professor SCHUMACHER. But, notwithstanding the ability with which that work is conducted, the Committee are of opinion that it is not so generally diffused in the Navy as its merits deserve; arising probably from its not being sufficiently known. And as there can be no question, at the present day, about its utility and importance to navigation; and as every method ought to be encouraged and promoted that will tend to assist the mariner in determining the position of his vessel at all times, and more especially at a time when the ordinary methods may fail; the Committee recommend that the above Articles, computed for mean time, be incorporated with, and form part of, the Nautical Almanac: by which arrangement, both the navigator and the astronomer will be furnished with the addition of much valuable and important information, at a much less expense than they can now procure it; and the mariner (by thus having the means constantly at hand) will be more likely to adopt a practice which cannot fail of being oftentimes of very essential and perhaps vital importance. The Committee however recommend some slight additions, and a few alterations in the arrangement of the articles; the most important of which is the substitution of the *heliocentric* longitude and latitude, for the *geocentric*; with the hourly difference in right ascension and declination of Venus, if it can be conveniently introduced; together with the introduction of the logarithm of the *radius vector*, calculated to 7 places of decimals, the mean time of the transit of the planet, to the nearest minute, and the other computations carried to the same extent as in the Berlin Ephemeris. To which should be added the horizontal parallax and *polar* semidiameter of each planet, calculated to 2 places of decimals, for every 5th day of the year: the ratio of the two diameters (if known) being stated. And the Committee recommend that in the *geocentric* places of the planets, the effect of aberration should be included.

10. The Committee, at the same time that they recommend this great accession of strength to the purposes of navigation, would think themselves deficient in the duty which they owe to the interests of that science which they are more particularly called upon to protect and advance, if they did not claim from the hands of a liberal and enlightened government the *same* information with respect to the two other principal planets (Mercury and the Georgian); as well as a less extended account of the motions and positions of the four newly-discovered planets (Vesta, Juno, Pallas, and Ceres), together with an ephemeris, at the time of their expected re-appearance, of the two Comets of short period, and of the comet of Halley, which are now known to belong exclusively to our system. The amount of these proposed additions will be seen in the Appendix: and they will occupy forty pages of the Almanac. It might perhaps be urged that these cannot be available for any purposes of *nautical* astronomy. But, surely the frequent transits of Mercury over the sun's disc cannot be considered as wholly unconnected with the general improvement of astronomy and geography, the two loadstars of navigation: and if it were only on this account, it is requisite that the tables of the planet should be as accurate as possible. And in a system where each body is mutually dependent on the others, where the beauty and harmony of the whole cannot be elicited or explained without a minute examination of the motions of each planet in detail, and where much has been, and may still be, done by private observers towards this great end, the trifling expense, incurred by the additional information here alluded to, must not be considered as wholly lost to the country, but may be repaid with interest at some future period. The remarkable anomaly in the motion of the satellites of the Georgian, noticed by Sir William Herschel; the singular discrepancies in the orbits and motions of the four newly-discovered planets, situated at nearly an equal distance from the sun; and the suspicion of the existence of a highly-rarefied medium in which the planets perform their revolutions, indicated by the retarded motion of one of the above-mentioned comets,—may derive new light from future observations, and tend to enlarge our views of the system of the universe.

11. Considering the importance of the *Eclipses of Jupiter's satellites* in determining the longitude of places, and that it is consequently desirable to aim at the greatest perfection of the tables, the Committee recommend that there be given the time of the *contact* of the satellites with the planet, and likewise the time of the *contact of their shadows*, when the satellites pass over the disc of the planet. The Committee are aware that these phenomena can only be observed by powerful instruments; but since, in the opinion of some profound mathematicians, they present the best means of determining some of the elements in the theory of Jupiter's satellites, whereby the Tables may consequently be rendered more accurate and complete, they have not hesitated to recommend a measure

which, at a very trifling expense, may induce such astronomers as are possessed of the requisite instruments, to enter on a series of observations connected with this delicate and important branch of astronomy. They further recommend that the computations of the time of the contacts above mentioned be calculated in sidereal time to the nearest minute, and that the time of the eclipses be extended to one place of decimals in the seconds; and given in *sidereal* as well as in *mean solar* time: and that for the convenience of observers there be annexed diagrams in each month, in lieu of the co-ordinates, for showing the position of each satellite with respect to Jupiter, at the time of immersion and emersion.

12. Although not immediately in the order of the subjects, yet as being in some measure connected with what has just been stated, the Committee here recommend that the *Configurations* of Jupiter's satellites should be determined for the hour of mean *astronomical* time, and not for the hour denoted by the *civil* mode of reckoning as hitherto adopted; which has been found to lead to some confusion: and that as much explanation should be given at the foot of the page as can be conveniently done; with a notice that the positions are such as they would appear in a telescope that inverts.

13. The Committee further recommend that the two columns entitled "Logarithms of C, D," inserted in the late Supplements to the Nautical Almanac, be retained: and that there be added thereto the logarithms of A, B. The computations to be made for mean midnight.

14. On the subject of the *Lunar Distances*, the Committee have had much discussion as to the propriety and advantage of extending them to *every* hour in the day, instead of every *third* hour as at present. But, although this arrangement might, at first, appear more convenient to the seaman, as well as more accurate in the results, inasmuch as the effect of the second differences would in such case almost wholly vanish; yet, when the Committee considered that the seaman must in every instance make a computation for the fractional part of the interval, and that the correction for second differences, in the case of *three* hours, is in general very small, and by no means equal in amount to other corrections, too frequently and too notoriously omitted in practice; and moreover that this proposal would have the effect of adding 120 pages to the Nautical Almanac: they have thought that they should not be justified in recommending a measure of such doubtful advantage, and which would certainly be attended with a considerable increase of expense. They however recommend that the proportional logarithm of the first difference, to 4 places of decimals (or to 5 places, if practicable), be inserted, for the convenience of the seaman: as well as a small table for finding the correction on account of second differences, which will not occupy more than half a page, and by means of which the intelligent navigator will be enabled to find the correction which ought to be applied, when great accuracy is required; and obviate the necessity of any further extension at present of the lunar distances. And, in compliance with the wishes of several officers of the Royal Navy, they suggest the propriety of extending the limits of each star a little further, whenever it may appear to the computer that it can be done with good effect. The Committee also recommend that the lunar distances of the *planets* (already alluded to) be inserted amongst the other lunar distances in the monthly Ephemeris.

15. This completes the list of articles usually inserted in the *monthly* pages of the Nautical Almanac: and the Committee recommend that, for the convenience of taking out differences, there be inserted at the bottom of each page (when requisite) the quantities that follow next in order of succession on the first day of the following month. At the end of these monthly lists the Committee recommend that a page be set apart for the insertion of the following quantities, for every tenth day of the year, and computed to 2 places of decimals: viz. the apparent obliquity of the ecliptic, the parallax of the sun, the aberration of the sun, the equation of the equinoctial points in longitude, and also in right ascension (in time): together with the mean longitude of the moon's ascending node, to the tenth of a minute. And that there be also added, at the bottom, the mean obliquity of the ecliptic for January 1st; and the mean daily motion of the moon's node.

16. The Committee strongly recommend the insertion of the *list of moon-culminating stars*, given in the late Supplements to the Nautical Almanac, as affording one of the best modes of determining the longitude of distant places, when the navigator, furnished with a transit instrument, can obtain a landing. As it is absolutely essential, however, that *only one* list of such stars should be published for the use of navigators of all nations, and as

Professor Encke proposes to discontinue his list as soon as he is assured that the British Government will permanently adopt one, the Committee trust that they may be excused for entering rather more minutely into the mode in which those stars should be selected. They recommend, therefore, that not more than 4 stars should be selected for one day, 2 of which are to precede and 2 to follow the moon: that the stars thus forming each pair be chosen so as not to be very distant from each other in right ascension, and nearly midway between the right ascension of the moon at the time of her transit on two consecutive days: that the 2 stars chosen to follow the moon on one day, be adopted as the 2 to precede the moon on the subsequent day: that no star be selected below the 5th, but on no account below the 6th magnitude: that the stars so chosen should not be situated more than 5 degrees from the path of the moon's true orbit: and that the list should be continued through each lunation within 4 days of the new moon: that the apparent right ascension (in time) of the star to two places, and the mean declination of the star to the nearest minute, be given. And the Committee further recommend that an asterisk be annexed to those stars in the list which are situated between 4° and 14° of north declination, for the purpose of indicating, to observers in the northern and southern hemispheres, such as are best situated for observing the difference of declination between them and the moon, with a view to the determination of her parallax.

17. And for the convenience of those computations which are connected with moon culminating stars, the Committee likewise recommend that the column entitled the moon's "Semidiameter passing the meridian in sidereal time," as given in the late Supplements to the Nautical Almanac, be retained: but that it be extended to the time of the *lower* (as well as the *upper*) culmination: and that there be given also the right ascension (in time) of the moon's enlightened limb to two places, for her upper and lower culmination: together with the change in the same, corresponding to its transit over one hour of longitude; and also the moon's declination, to the nearest minute, at the time of her transit.

18. In lieu of the "Elements for computing the principal lunar occultations of the fixed stars," usually inserted at the end of the Nautical Almanac, the Committee recommend that there should be given: 1st. A list of predicted occultations of such of the planets (including the satellites, when Jupiter is occulted) and of the fixed stars (to the 6th magnitude inclusive) as may be visible at Greenwich, both in mean and sidereal time to the nearest minute: with the angle from the vertex, as seen in a telescope that inverts, and also from the most northern point of the moon's disc, each reckoned in degrees from right to left, round the circumference. 2nd. Elements for predicting such occultations of the planets and fixed stars (to the 5th magnitude inclusive) as may be visible in some habitable part of the globe: together with the limits of latitude beyond which they cannot be occulted, as in the Bologna Ephemeris; in order that navigators may know when and where to look out for the phenomena. And they likewise recommend that the apparent places of such stars, on the day of occultation, be given.

19. The Committee further recommend that the *Apparent places of the principal fixed stars* be, in future, given for the time of their transit at Greenwich, and not (as heretofore) for the time of noon: and that the co-efficients A. B. C. D and the *constants* given in the Catalogue of this Society, be adopted in the computations. The places of α and δ *Ursæ Minoris* for every day in the year: and the remainder (as usual) for every tenth day, with a column of differences: and that where the proper name of a star is retained, there be added the constellation to which it belongs, and its corresponding letter or number. And as it has been a frequent source of regret, by navigators frequenting the Southern Ocean, that there are so few *southern* stars inserted in the usual list; and as it would be also desirable to have the apparent places of a few more *circumpolar* stars, as well as of some others to fill up the *chasms* in the present list; the Committee proceeded to the selection of the stars proper for those purposes, and they now submit the following general list of stars (comprehending most of those inserted in the late Nautical Almanacs, which are here distinguished by an asterisk prefixed) as the list that, under all circumstances, would be most suited to the wants of the navigator and the astronomer: at the same time, leaving the insertion of any others for future consideration. The Committee also recommend that the mean places of all these stars, for January 1st of the current year, be inserted in a *separate* list: that the magnitudes and annual variations be annexed: that the *declinations* in all cases be given, instead of the *north polar distances*: and that such declinations when south be denoted by the letter S (for the convenience of mariners) instead of the negative sign.

Stars.	Mag.	A. R.	Dec.	Stars.	Mag.	A. R.	Dec.
		h. m.	° ' "			h. m.	° ' "
* γ Pegasi -	2.3	0 4	+14 14	* α Ursæ Maj. -	2.3	13 41	+50 10
β Hydri -	3	0 17	-78 13	η Bootis -	3	13 47	+19 15
* α Cassiopeæ -	3	0 31	+55 36	β Centauri -	1	13 52	-59 33
β Ceti -	2.3	0 35	-18 55	α Bootis -	1	14 8	+20 4
* α Ursæ Min. -	2.3	0 59	+68 24	α^2 Centauri -	1	14 28	-60 8
δ Ceti -	3	1 16	-9 4	* α Bootis -	3	14 38	+27 46
α Eridani -	1	1 31	-58 6	* α^2 Libræ -	3	14 41	-15 20
* α Arietis -	3	1 58	+22 39	β Ursæ Min. -	3	14 51	+74 51
γ Ceti -	3	2 34	+2 31	β Libræ -	2.3	15 8	-8 45
* α Ceti -	2.3	2 53	+3 25	* α Cor. Bor. -	2	15 27	+27 18
* α Persei -	2.3	3 12	+49 15	* α Serpentis -	2.3	15 36	+6 58
η Tauri -	3	3 37	+23 34	ζ Ursæ Min. -	4	15 50	+78 19
γ Eridani -	2.3	3 50	-14 0	β^1 Scorpii -	2	15 56	-19 20
* α Tauri -	1	4 26	+16 10	* δ Ophiuchi -	3	16 5	-3 15
* α Aurigæ -	1	5 4	+45 49	ϵ Octantis -	1	16 18	-89 25
β Orionis -	1	5 6	-8 24	* α Scorpii -	1	16 19	-26 3
* β Tauri -	2	5 16	+28 27	η Draconis -	3	16 22	+61 54
* δ Orionis -	2	5 23	-0 26	* α Triang. Aust. -	2	16 31	-68 42
α Leporis -	3.4	5 25	-17 57	α Ursæ Min. -	4	17 4	+82 18
* α Orionis -	2.3	5 28	-1 19	* α Herculis -	3.4	17 7	+14 36
α Columbæ -	2	5 33	-34 10	* β Draconis -	2	17 27	+52 26
* α Orionis -	1	5 46	+7 22	* α Ophiuchi -	2	17 27	+12 43
μ Geminorum -	3	6 13	+22 36	* γ Draconis -	2	17 53	+51 31
51 (Hév.) Cephei -	5	6 18	+87 17	α^1 Sagittarii -	3.4	18 4	-21 6
* α Argus -	1	6 20	-52 36	* δ Ursæ Min. -	3	18 27	+86 35
* α Canis Maj. -	1	6 38	-16 29	* α Lyræ -	1	18 31	+38 38
* α Canis Maj. -	2.3	6 52	-23 45	* β Lyræ -	3	18 44	+33 10
δ Geminorum -	3.4	7 10	+22 17	* ζ Aquilæ -	3	18 58	+13 37
* α Geminorum -	3	7 24	+32 15	* δ Aquilæ -	3.4	19 17	+2 47
* α Canis Min. -	1.2	7 30	+5 39	* γ Aquilæ -	3	19 38	+10 12
* β Geminorum -	2	7 35	+28 26	* α Aquilæ -	1.2	19 42	+8 26
15 Argus -	3.4	8 0	-22 49	* β Aquilæ -	3.4	19 47	+5 59
α Hydre -	4	8 38	+7 2	* α^2 Capricorni -	3	20 9	-13 4
α Ursæ Maj. -	3.4	8 47	+48 42	α Pavonis -	2	20 12	-57 16
* α Argus -	2	9 13	-58 34	* α Cygni -	1	20 36	+44 41
α Hydre -	2	9 19	-7 56	* (61) γ Cygni -	1	20 59	+47 56
δ Ursæ Maj. -	3	9 21	+52 27	ζ Cygni -	3	21 6	+29 30
α Leonis -	3	9 36	+24 33	λ Ursæ Min. -	5	21 8	+88 34
* α Leonis -	1	9 59	+12 48	* α Cephei -	3	21 15	+61 52
η Argus -	2	10 38	-58 48	* β Aquarii -	3	21 23	-6 19
* α Ursæ Maj. -	1.2	10 53	+62 40	* β Cephei -	3	21 26	+69 49
* δ Leonis -	3	11 5	+21 27	α Pegasi -	2.3	21 36	+9 6
β Hyd. et Crat. -	3.4	11 11	-13 51	* α Aquarii -	3	21 57	-1 8
* β Leonis -	2.3	11 40	+15 31	α Gruis -	2	21 57	-47 47
* γ Ursæ Maj. -	2	11 45	+54 38	ζ Pegasi -	3	22 33	+9 57
β Chamæleontis -	5	12 9	-78 22	* α Piscis Aust. -	1	22 48	-30 31
* α Crucis -	1	12 17	-62 9	* α Pegasi -	2	22 56	+14 18
β Corvi -	2.3	12 25	-22 27	α Piscium -	4.5	23 31	+4 43
12 Can. Venat. -	2.3	12 48	+39 14	γ Cephei -	3	23 32	+76 41
* α Virginis -	1	13 16	-10 16	* α Andromedæ -	1	24 0	+28 0

20. The Committee recommend that the several monthly lists of *Phenomena*, usually given in the first page of each month in the Nautical Almanac, be inserted *altogether* at some convenient part of the work: that the conjunctions of the fixed stars with the moon (as usually given) be wholly discontinued: that the conjunctions in future be confined to the planets with the moon and with such of the fixed stars as may afford any interesting results, and to the planets with each other: that such conjunctions be expressed in *right ascension* (and not in longitude as heretofore), to which should be added the difference of declination to the nearest minute: that the other phenomena which should be noted, be the times when the planets are in quadrature, conjunction, opposition, perihelion, aphelion, and nodes; as well as when stationary and at their greatest elongation and heliocentric latitude, with the amount of the former expressed to the nearest minute: also the time of the sun being in perigee and apogee; the time of the greatest brilliancy of Venus, of the maximum and minimum of the light of Algol and other variable stars, the maxima of the moon's libration, as well as notices of any remarkable phenomena that may be ex-

pected to take place; such as the transits of Mercury, the re-appearance of comets, &c. &c. And that at the end of this list there be given the elements for determining the geocentric form of Saturn's ring; together with elements for determining the illuminated portion of the discs of Venus and Mars.

21. The Committee likewise recommend the insertion of four tables, which may occasionally be found extremely useful and necessary to navigators and others, and which will not occupy much space: viz. 1st. A table for determining the latitude of a place by observations of the pole star at any hour of the day: 2nd. A table of the longitude and latitude of the principal observatories, from the latest information: 3rd. A table of the mean time of high water at London Bridge for every day in the year; and also at the principal ports, at the time of new and full moon: and 4th. Errata from time to time discovered in the principal logarithmic and other tables of repute. Together with Notices, from time to time, of important geographical information, comprising newly-determined positions, magnetic variations, phenomena of the tides, &c.

22. Reverting to those articles of the Nautical Almanac which usually precede the monthly parts, the Committee recommend that the "Ember days" be discontinued: and that the following days be subjoined to the "Moveable feasts" or united with them under some other title: viz. Epiphany, Good Friday, King Charles's restoration, Gunpowder-plot, St. George, St. Andrew, St. Patrick, King's birth-day, accession, proclamation, and coronation, Queen's birth-day, Lady-day, Midsummer-day, Michaelmas-day, and Christmas-day, together with the commencement of the Jewish and of the Mohammedan year, and particularly the commencement of the fast of Ramadân (which may be occasionally useful to officers cruising in the neighbourhood of Mohammedan states), and such other days as the superintendent of the Nautical Almanac may think advisable.

23. In this part of the Nautical Almanac also is usually inserted the account of the solar and lunar eclipses. The Committee recommend that in the account of the solar eclipses, there should be given the elements employed in the computation, the line of the moon's umbra across the earth, together with a diagram of the same; and generally more particulars relative to the phenomena, as in the Berlin Ephemeris.

24. The Committee, considering that the table of "Refractions," the table "For reducing sexagesimal time to the decimal fraction of a day, and the reverse," and the table of the "Equation of second differences" are of a permanent nature, and that the latter, in fact, will be of little use to the navigator, should the present alteration in the arrangements be carried into effect, recommend that they be discontinued in the Nautical Almanac: and that they be transferred to another work which they trust will be formed for the benefit and promotion of nautical astronomy, under the title of "Tables requisite to be used with the new Nautical Almanac." They recommend, however, the insertion of the short table of the equation of second differences for intervals of three hours, mentioned in the preceding part of this Report.

25. Such are the alterations and additions which the Committee, after the most mature deliberation and discussion, have considered it advisable to recommend for adoption. They are of a nature to satisfy not only the wishes of the astronomer, but also the demands of the navigator: and the Committee are of opinion that, with due economy, and such an arrangement of the parts amongst the several computers as will afford them constant employment, the whole of the additional computations may in a short time be obtained without much (if any) additional cost to the nation. But whether a comparer, in addition to the superintendent and computers, be absolutely necessary, or whether any considerable sum could be saved in the articles of paper and printing, the Committee do not take upon themselves to decide. They have, however, no hesitation in stating it as their opinion that very considerable savings might be effected: and they have ascertained that the cost of paper and printing the additions proposed will not exceed £360: an expense which, even if charged on the work, would be cheerfully paid in consideration of the additional information which it contains. But by not raising the present price of the work, the inducement for reprinting it in foreign countries would be in a great measure removed: whilst its important and valuable contents would insure it a place in almost every vessel that sails on the ocean; and by thus increasing the sale, not only repay the additional charges incurred in the computations, but probably relieve the country also from a considerable annual expense.

26. The Committee strongly recommend that any errors, discovered in the Nautical Almanac, should be printed immediately for general information, and be annexed to all the unsold copies: and that notice of the same be advertised in the London Gazette, and in some of the public papers, as early as possible.

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27. Should the Lords Commissioners of the Admiralty think proper to adopt the alterations that may be ultimately agreed upon by the Council, the Committee recommend that the "Explanation," usually given at the end of the Nautical Almanac, be entirely re-composed in the plainest style possible, and new modelled so as to correspond with the proposed arrangements; with examples taken from the body of the work: and that a "Table of Contents" be prefixed. And they take this opportunity of expressing their decided opinion of the propriety and necessity of inserting in the "Preface" to each year's almanac, an account of all the tables and authorities depended upon in every computation, with an express notice of such equations as may be omitted, or of any corrections introduced; in order that any person may verify the calculations at his pleasure. Whether the names of the computers should be inserted, may be left to the discretion of the superintendent. The Committee however are of opinion that it would tend very much to the prevention and also the detection of errors in the computations, if *printed skeleton forms*, bound up in separate volumes of a sufficient magnitude for one year's use, were provided for the several computers: which when finished should be signed by them respectively, and afterwards deposited with, and preserved by, the superintendent for the purpose of reference.

28. The Committee also recommend that the publication of the Nautical Almanac be always four years in advance: and they consider that it would be highly desirable that the improvements, ultimately adopted in that work in consequence of this Report, should be ordered to appear in the volume for 1834, and by no means be deferred beyond that period: the Committee being confident that, by due exertion, this may be effected. And they recommend that notice of the same should be given in the Preface to the Nautical Almanac for 1833.

29. The Committee cannot close their labours, without acknowledging the valuable hints and suggestions contained in the several letters received from those members who could not conveniently attend the meetings: and who will see, from this Report, that every subject mentioned by them has regularly come under discussion.

30. The Committee are happy also in expressing their sense of the zeal and attention of one of the Associates of this Society (Professor STRUVE), who, during his short stay in England, devoted a considerable portion of his time to these proceedings: and from whose profound knowledge of every branch of practical and theoretical astronomy, the Committee have derived the most valuable assistance.

31. They likewise consider it their duty to notice the constant attendance of the Astronomer Royal at all their meetings; the readiness with which he afforded them every information relative to the various subjects that came under consideration; and the zeal with which he entered into all their views for improving this national work.

APPENDIX,—CONTAINING A LIST OF THE ARTICLES PROPOSED TO BE INSERTED IN THE NAUTICAL ALMANAC.

N.B. Those *articles* which are now introduced for the first time (that is, which do not form any part of the Nautical Almanac or its Supplement for 1830, or of the Specimen for 1833) are printed in *Italics*: and the same mode is adopted to denote the *alterations* which have been made in the *extension of the computations* of the other articles. By this method, the additions and alterations proposed may be readily distinguished.

The use of *apparent* time to be abolished in all the computations, except in those immediately connected with the sun's transit.

The day of the week, repeated as often as convenient.

_____ month, on every page.

_____ year (or days elapsed since Jan. 1st), in numerical order.

The fractional part of the year, for every such day.

Equinoctial time for every day in the year.

Mean time of the transit of the first point of Aries, to two places, for every day.

SUN'S	{	Right ascension in time (with <i>hourly motion</i>), to two places,	} at the time of Sun's transit.
	{	Declination (with <i>hourly motion</i>), to one place, -	
	{	Sidereal time of semidiameter passing meridian, to two places, -	
Equation of time (with hourly differences) to two places, -			

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SUN's	{	<i>Right Ascension, to two places,</i>	-	-	}	at mean noon.	
		<i>Declination, to one place,</i>	-	-			
		<i>Longitude, to one place,</i>	-	-			
		<i>Latitude, to two places,</i>	-	-			
		<i>Semidiameter, to one place,</i>	-	-			
Sidereal time, to two places,		-	-	-			
<i>Equation of time, to two places,</i>		-	-	-			
Logarithm of radius vector, to seven places,		-					
MOON's	{	<i>Longitude, to one place,</i>	-	-	}	for noon and midnight.	
		<i>Latitude, to one place,</i>	-	-			
		<i>Horizontal parallax, to one place</i>	-	-			
		<i>Semidiameter, to one place,</i>	-	-			
		<i>Mean time of transit, to the tenth of a minute.</i>					
		<i>Age, to the tenth of a day, for noon.</i>					
		<i>A. R. in time, to two places,</i>			}	for every hour.	
		<i>Declination, to one place,</i>					
<i>— with differences for five minutes.</i>							
<i>Phases to the tenth of a minute,</i>		-	-		}	for each lunation.	
<i>Perigee and Apogee for the nearest hour,</i>		-	-				
PLANETS, viz. Mercury, Venus, Mars, Jupiter, Saturn, Georgian,	{	<i>Heliocentric Longitude to one place,</i>	-	-	}	for every day at noon.	
		<i>Latitude, to one place,</i>	-	-			
		<i>Logarithm of Radius vector, to seven places,</i>	-	-			
		<i>Geocentric A. R. in time, to two places,</i>	-	-			
		<i>Declination, to one place,</i>	-	-			
		<i>Log. dist. from the Earth, to seven places,</i>	-	-			
		<i>Mean time of transit, to the tenth of a minute,</i>					
<i>Horizontal parallax, to two places,</i>			}	for every fifth day.			
<i>Polar semidiameter, to two places,</i>							

The co-efficients *A, B, C, D*, for every day, at midnight.

JUPITER'S SATELLITES.	{ Eclipses of		{ in mean and <i>sidereal</i> time, to <i>one</i> place.
			{ diagrams for showing the place at that time.
	{ Contact with the planet, in <i>sidereal</i> time,		} to the nearest minute.
	{ Contact of shadows with the planet in <i>do.</i>		
	Configurations.		

LUNAR DISTANCES { from the Sun and the nine principal fixed stars, } for every third hour.
 { and from *Venus, Mars, Jupiter, and Saturn,* }
 with the proportional logarithms of the differences annexed.

Apparent obliquity of the ecliptic, to two places,	-	} for every tenth day.
Parallax of the sun, to two places,	-	
Aberration of the sun, to two places,	-	
Equation of equinoctial points in longitude to two places,	-	
- in A. R., to two places,		

Mean longitude of Moon's node, to the tenth of a minute,
 Mean obliquity of the ecliptic, for January 1st, } at the bottom of the page.
 Mean daily motion of the moon's node, - - - }

ECLIPSES. { *Solar, with the line of the moon's umbra, diagrams, &c.*
 { *Lunar.*

Predicted Occultations (visible at Greenwich) of planets and fixed stars to the sixth magnitude inclusive, in mean and sidereal time, to the nearest minute; with the angle from the vertex, and also from the most northern point of the moon's disc.

Elements for predicting such occultations of the planets and fixed stars to the fifth magnitude inclusive, as may be visible in any habitable part of the globe; with the limits of latitude annexed.

The apparent places of the stars on the days of occultation to be given, in both cases.

Apparent places of the fixed stars (100 in number) for their time of transit:

α and δ Ursæ Minoris, for every day;

the remainder for every tenth day, with differences annexed;

Mean places of the same at the beginning of the year, in a separate list.

A list of Moon-culminating Stars, continued within four days of new moon: the apparent A. R. of the stars to two places, and the mean declination to the nearest minute. Also the

MOON'S { *A. R. in time, of her bright limb, to two places,*
Variation in ditto for one hour of longitude, } *for upper and lower*
Sidereal time of semidiameter passing meridian, } *culmination.*
to two places,
Declination, to nearest minute, for upper culmination.

*A LIST OF
PHENOMENA,
containing*

{ *conjunctions (in A. R.) of the planets with* { *the moon.*
with difference of declination to the nearest minute. } *certain fixed stars.*
each other.
time when the planets are { *in Quadrature.*
in Conjunction.
in Opposition.
in their Perihelion.
in their Aphelion.
in their Nodes.
stationary.
at their greatest heliocentric Latitude.
at their greatest Elongation (with amount).
time when the Sun is in { *Perigee.*
Apogee.
time of the greatest brilliancy of Venus.
time of the maximum and minimum of the light of variable stars.
time of the maxima of the Moon's libration.
notice of { *transits of Mercury.*
predicted Comets.
any other remarkable phenomena.

Elements for finding { *the geocentric appearance of Saturn's ring.*
the illuminated portions of the discs of Venus and Mars.

TABLES { *for the correction of second differences, in Lunar distances.*
for determining the Latitude by the pole star, out of the meridian.
of the Longitude and Latitude of the principal Observatories.
of the time of high water at London Bridge.
for finding the time of high water at the principal ports.
of Errata discovered in logarithmic and other tables of repute.

Notice of newly-determined positions, magnetic variations, &c. &c.

Preface to contain an account of all the Tables used in every computation; and a notice of any Equations omitted, or new Corrections applied.

Cycles, remarkable days, moveable feasts, law terms, &c., to be prefixed.

Table of Contents.

(Signed)

J. SOUTH, *President.*

PRINCIPAL ARTICLES OF THE CALENDAR, For the Year 1834.

Golden Number	- - - -	11		Dominical Letter	- - - -	E
Epact	- - - -	20		Roman Indiction	- - - -	7
Solar Cycle	- - - -	23		Julian Period	- - - -	6547

FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, &c. &c.

Epiphany	- - - -	Jan. 6		Whit Sunday	- - - -	May 18
Septuagesima Sunday	- - - -	26		Trinity Sunday	- - - -	25
Martyrdom of K. Charles I.	- - - -	30		Restoration of K. Charles II.	- - - -	29
Shrove Sunday	- - - -	Feb. 9		St. John Bapt.—Midsm' D.	June 24	
Ash Wednesday	- - - -	12		Accession of K. William IV.	- - - -	26
St. David	- - - -	Mar. 1		Proclamation	- - - -	28
St. Patrick	- - - -	17		Birth of Q. Adelaide	- - - -	Aug. 13
Palm Sunday	- - - -	23		Birth of K. W. IV.*	- - - -	21
Annunciation—Lady Day	- - - -	25		Coronation of K. W. IV.	Sept. 8	
Good Friday	- - - -	28		St. Michael—Michaelmas Day	- - - -	29
EASTER SUNDAY	- - - -	30		Gunpowder Plot	- - - -	Nov. 5
Low Sunday	- - - -	Apr. 6		Advent Sunday	- - - -	30
St. George	- - - -	23		St. Andrew	- - - -	30
Rogation Sunday	- - - -	May 4		St. Thomas	- - - -	Dec. 21
Ascension Day	- - - -	8		Christmas Day	- - - -	25

* Kept May 28.

The Year 5595 of the Jewish Era commences on October 4, 1834.

The Year 1250 of the Mohammedan Era commences on May 9, 1834.

Ramadân (Month of Abstinence observed by the Turks) commences on January 11, 1834, and on December 31, 1834.

EXPLANATION OF ASTRONOMICAL SYMBOLS AND ABBREVIATIONS.

☉ The Sun.	♌ Conjunction.	♈ Aries.
☾ The Moon.	☐ Quadrature.	♉ Taurus.
☿ Mercury.	♍ Opposition.	♊ Gemini.
♀ Venus.	♎ Ascending Node.	♋ Cancer.
♁ or ♂ The Earth.	♏ Descending Node.	♌ Leo.
♂ Mars.	N. North.	♍ Virgo.
♄ Vesta.	S. South.	♎ Libra.
♅ Juno.	° Degrees.	♏ Scorpio.
♆ Pallas.	' Minutes of Arc.	♐ Sagittarius.
♇ Ceres.	" Seconds of Arc.	♑ Capricornus.
♈ Jupiter.	h Hours.	♒ Aquarius.
♉ Saturn.	m Minutes of Time.	♓ Pisces.
♊ Georgian.	s Seconds of Time.	

LAW TERMS, 1834,

As settled by Statute 1 WILL. IV. cap. 70, s. 6. (Passed July 23, 1830.)

HILARY TERM - - - -	Begins Jan. 11	Ends Jan. 31
EASTER - - - - -	Apr. 15	- - May 8
TRINITY - - - - -	May 22	- - June 12
MICHAELMAS - - - - -	Nov. 3	- - Nov. 25

For Returns see Statute 1 WILL. IV. cap. 3, sec. 2. (Passed Dec. 23, 1830.)

UNIVERSITY TERMS, 1834.

Names.	OXFORD.		CAMBRIDGE.		
	<i>Begins.</i>	<i>Ends.</i>	<i>Begins.</i>	<i>Divides.</i>	<i>Ends.</i>
Hilary - -	Jan. 14	Mar. 22	Jan. 13	Feb. 15, Midnight.	Mar. 21
Easter - -	April 9	May 17	April 9	May 22, Noon.	July 4
Trinity - -	May 21	July 5	- - -	- - - - -	- - -
Michaelmas -	Oct. 10	Dec. 17	Oct. 10	Nov. 12, Midnight.	Dec. 16
<i>The Act, July 1.</i>			<i>The Commencement, July 1.</i>		

EPHEMERIS**FOR THE YEAR****1834,****FOR THE MERIDIAN****OF THE****ROYAL OBSERVATORY AT GREENWICH.**

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		
		^h ^m ^s	^s	^o ['] ["]	["]	^m ^s	^m ^s
Wed.	1	18 46 27.49	11.038	S. 23 1 49.7	12.83	1 11.02	3 49.40
Thur.	2	18 50 52.39	11.023	22 56 41.7	13.98	1 10.97	4 17.66
Frid.	3	18 55 16.92	11.008	22 51 6.2	15.11	1 10.92	4 45.56
Sat.	4	18 59 41.11	10.992	22 45 3.5	16.24	1 10.86	5 13.12
Sun.	5	19 4 4.91	10.973	22 38 33.8	17.36	1 10.80	5 40.29
Mon.	6	19 8 28.27	10.954	22 31 37.1	18.48	1 10.74	6 7.01
Tues.	7	19 12 51.16	10.934	22 24 13.7	19.58	1 10.67	6 33.28
Wed.	8	19 17 13.58	10.911	22 16 23.9	20.67	1 10.60	6 59.07
Thur.	9	19 21 35.45	10.890	22 8 7.7	21.76	1 10.53	7 24.32
Frid.	10	19 25 56.81	10.865	21 59 25.5	22.83	1 10.46	7 49.04
Sat.	11	19 30 17.58	10.840	21 50 17.6	23.89	1 10.38	8 13.20
Sun.	12	19 34 37.75	10.814	21 40 44.2	24.94	1 10.30	8 36.75
Mon.	13	19 38 57.29	10.787	21 30 45.6	25.98	1 10.21	8 59.66
Tues.	14	19 43 16.17	10.759	21 20 22.1	27.01	1 10.12	9 21.92
Wed.	15	19 47 34.38	10.730	21 9 33.9	28.02	1 10.03	9 43.51
Thur.	16	19 51 51.89	10.700	20 58 21.5	29.02	1 9.94	10 4.41
Frid.	17	19 56 8.68	10.670	20 46 45.1	30.00	1 9.85	10 24.59
Sat.	18	20 0 24.75	10.638	20 34 45.1	30.97	1 9.75	10 44.05
Sun.	19	20 4 40.06	10.606	20 22 21.7	31.93	1 9.64	11 2.75
Mon.	20	20 8 54.61	10.574	20 9 35.5	32.87	1 9.53	11 20.70
Tues.	21	20 13 8.39	10.542	19 56 26.5	33.79	1 9.43	11 37.87
Wed.	22	20 17 21.39	10.509	19 42 55.4	34.71	1 9.32	11 54.27
Thur.	23	20 21 33.60	10.475	19 29 2.4	35.61	1 9.21	12 9.88
Frid.	24	20 25 45.00	10.442	19 14 47.8	36.49	1 9.11	12 24.68
Sat.	25	20 29 55.62	10.409	19 0 12.1	37.36	1 8.99	12 38.70
Sun.	26	20 34 5.43	10.375	18 45 15.6	38.21	1 8.88	12 51.92
Mon.	27	20 38 14.43	10.341	18 29 58.7	39.04	1 8.77	13 4.35
Tues.	28	20 42 22.62	10.308	18 14 21.8	39.86	1 8.66	13 15.95
Wed.	29	20 46 30.02	10.274	17 58 25.2	40.66	1 8.55	13 26.75
Thur.	30	20 50 36.60	10.240	17 42 9.3	41.45	1 8.43	13 36.75
Frid.	31	20 54 42.38	10.208	17 25 34.4	42.22	1 8.32	13 45.95
Sat.	32	20 58 47.34		S. 17 8 41.2		1 8.20	13 54.34

* Mean time of the Semidiameter passing may be found by subtracting 0^s.19 from the Sidereal

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
ed.	1	18 46 26·79	S. 23 1 50·5	16 17·3	3 49·33	18 42 37·46
ur.	2	18 50 51·60	22 56 42·7	16 17·3	4 17·58	18 46 34·02
d.	3	18 55 16·05	22 51 7·4	16 17·3	4 45·47	18 50 30·58
t.	4	18 59 40·15	22 45 4·9	16 17·2	5 13 02	18 54 27·13
n.	5	19 4 3·87	22 38 35·4	16 17·2	5 40·18	18 58 23·69
n.	6	19 8 27·15	22 31 38·9	16 17·2	6 6·90	19 2 20·25
es.	7	19 12 49·97	22 24 15·8	16 17·1	6 33·16	19 6 16·81
ed.	8	19 17 12·31	22 16 26·2	16 17·1	6 58·95	19 10 13·36
ur.	9	19 21 34·11	22 8 10·3	16 17·1	7 24·19	19 14 9·92
d.	10	19 25 55·39	21 59 28·4	16 17·0	7 48·91	19 18 6·48
t.	11	19 30 16·10	21 50 20·8	16 17·0	8 13·06	19 22 3·04
n.	12	19 34 36·20	21 40 47·7	16 16·9	8 36·61	19 25 59·59
n.	13	19 38 55·67	21 30 49·4	16 16·8	8 59·52	19 29 56·15
es.	14	19 43 14·49	21 20 26·2	16 16·8	9 21·78	19 33 52·71
ed.	15	19 47 32·64	21 9 38·4	16 16·7	9 43·37	19 37 49·27
ur.	16	19 51 50·09	20 58 26·3	16 16·6	10 4·27	19 41 45·82
id.	17	19 56 6·83	20 46 50·2	16 16·6	10 24·45	19 45 42·38
t.	18	20 0 22·85	20 34 50·5	16 16·5	10 43·91	19 49 38·94
n.	19	20 4 38·10	20 22 27·5	16 16·4	11 2·61	19 53 35·49
n.	20	20 8 52·61	20 9 41·6	16 16·3	11 20·56	19 57 32·05
es.	21	20 13 6·34	19 56 33·0	16 16·2	11 37·73	20 1 28·61
ed.	22	20 17 19·30	19 43 2·2	16 16·1	11 54·14	20 5 25·16
ur.	23	20 21 31·47	19 29 9·5	16 16·0	12 9·75	20 9 21·72
d.	24	20 25 42·84	19 14 55·3	16 15·9	12 24·56	20 13 18·28
t.	25	20 29 53·42	19 0 19·9	16 15·8	12 38·59	20 17 14·83
n.	26	20 34 3·20	18 45 23·7	16 15·7	12 51·81	20 21 11·39
n.	27	20 38 12·18	18 30 7·1	16 15·5	13 4·24	20 25 7·94
es.	28	20 42 20·34	18 14 30·5	16 15·4	13 15·84	20 29 4·50
ed.	29	20 46 27·71	17 58 34·2	16 15·2	13 26·65	20 33 1·06
ur.	30	20 50 34·27	17 42 18·6	16 15·1	13 36·66	20 36 57·61
d.	31	20 54 40·03	17 25 44·0	16 15·0	13 45·86	20 40 54·17
.	32	20 58 44·98	S. 17 8 51·1	16 14·8	13 54·26	20 44 50·72

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.							
Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	280 40 29.2	N. 0.88	9.9926613	16 10.6	16 8.1	59 21.9	59 1
2	281 41 38.8	0.89	9.9926665	16 5.4	16 2.4	59 2.6	58 5
3	282 42 48.4	0.89	9.9926740	15 59.3	15 56.1	58 40.3	58 2
4	283 43 58.2	0.84	9.9926838	15 52.7	15 49.1	58 16.0	58
5	284 45 8.3	0.77	9.9926955	15 45.6	15 41.9	57 49.9	57 3
6	285 46 18.3	0.68	9.9927093	15 38.1	15 34.4	57 22.7	57
7	286 47 28.3	0.57	9.9927249	15 30.4	15 26.5	56 54.5	56 4
8	287 48 38.2	0.45	9.9927424	15 22.6	15 18.6	56 25.6	56 1
9	288 49 47.7	0.33	9.9927615	15 14.6	15 10.7	55 56.4	55 4
10	289 50 57.2	0.21	9.9927824	15 6.8	15 3.1	55 27.8	55 1
11	290 52 6.3	N. 0.10	9.9928049	14 59.6	14 56.3	55 1.1	54 4
12	291 53 14.8	0.00	9.9928290	14 53.3	14 50.7	54 38.2	54 2
13	292 54 22.8	S. 0.08	9.9928549	14 48.5	14 46.7	54 20.4	54 1
14	293 55 30.0	0.14	9.9928825	14 45.4	14 44.7	54 9.1	54
15	294 56 36.7	0.18	9.9929119	14 44.6	14 45.2	54 6.3	54
16	295 57 42.5	0.17	9.9929433	14 46.5	14 48.4	54 13.2	54 2
17	296 58 47.4	0.15	9.9929767	14 51.1	14 54.5	54 30.1	54 4
18	297 59 51.6	0.10	9.9930122	14 58.6	15 3.3	54 57.5	55 1
19	299 0 54.6	S. 0.03	9.9930500	15 8.7	15 14.6	55 34.7	55 5
20	300 1 56.8	N. 0.06	9.9930901	15 21.1	15 27.9	56 20.2	56 4
21	301 2 58.0	0.18	9.9931327	15 35.0	15 42.3	57 11.4	57 3
22	302 3 58.3	0.30	9.9931778	15 49.6	15 56.7	58 4.7	58 3
23	303 4 57.6	0.43	9.9932252	16 3.5	16 9.9	58 55.9	59 1
24	304 5 56.0	0.55	9.9932755	16 15.6	16 20.5	59 40.3	59 5
25	305 6 53.4	0.66	9.9933283	16 24.5	16 27.6	60 13.1	60 2
26	306 7 50.0	0.75	9.9933836	16 29.6	16 30.5	60 31.7	60 3
27	307 8 45.8	0.83	9.9934416	16 30.3	16 29.1	60 34.2	60 2
28	308 9 40.6	0.88	9.9935020	16 27.0	16 23.9	60 22.0	60 1
29	309 10 34.7	0.89	9.9935647	16 20.2	16 15.8	59 56.9	59 4
30	310 11 27.9	0.89	9.9936299	16 10.9	16 5.7	59 23.0	59
31	311 12 20.4	0.86	9.9936972	16 0.3	15 54.9	58 44.2	58 2
32	312 13 11.9	N. 0.79	9.9937666	15 49.4	15 44.0	58 4.0	57 4

MEAN TIME.

		THE MOON'S														
Days of the Week.	Days of the Month.	Longitude.				Latitude.				Age.	Meridian					
		Noon.		Midnight.		Noon.		Midnight.		Noon.	Passage.					
		^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^o ⁱ ["]	^d	^h ^m					
Wed.	1	175	10	41·9	182	18	22·5	N.5	11	33·3	N.5	16	28·3	21·2	17	43·8
Thur.	2	189	23	44·2	196	26	32·7	5	16	32·4	5	11	49·8	22·2	18	33·0
Frid.	3	203	26	35·2	210	23	43·7	5	2	30·4	4	48	48·0	23·2	19	22·1
Sat.	4	217	17	51·3	224	8	53·5	4	31	0·2	4	9	27·4	24·2	20	12·0
Sun.	5	230	56	47·8	237	41	32·4	3	44	32·4	3	16	41·2	25·2	21	3·3
Mon.	6	244	23	5·7	251	1	27·1	2	46	21·4	2	14	0·1	26·2	21	56·1
Tues.	7	257	36	36·3	264	8	32·8	1	40	7·3	N.1	5	12·1	27·2	22	49·9
Wed.	8	270	37	16·8	277	2	49·0	N.0	29	44·1	S.0	5	48·4	28·2	23	43·9
Thur.	9	283	25	9·3	289	44	20·7	S.0	40	57·9	1	15	18·6	29·2		♂
Frid.	10	296	0	26·0	302	13	29·8	1	48	26·2	2	19	58·9	0·5	0	36·7
Sat.	11	308	23	38·0	314	31	0·1	2	49	37·0	3	17	2·8	1·5	1	27·3
Sun.	12	320	35	47·2	326	38	12·8	3	42	1·6	4	4	20·3	2·5	2	15·2
Mon.	13	332	38	33·1	338	37	7·9	4	23	48·7	4	40	17·6	3·5	3	0·4
Tues.	14	344	34	18·7	350	30	30·0	4	53	40·2	5	3	51·1	4·5	3	43·3
Wed.	15	356	26	8·5	2	21	43·6	5	10	46·3	5	14	22·2	5·5	4	24·7
Thur.	16	8	17	47·0	14	14	50·5	5	14	36·9	5	11	29·2	6·5	5	5·4
Frid.	17	20	13	29·2	26	14	17·9	5	4	58·8	4	55	5·7	7·5	5	46·3
Sat.	18	32	17	53·5	38	24	50·1	4	41	51·6	4	25	19·0	8·5	6	28·6
Sun.	19	44	35	44·1	50	51	8·2	4	5	31·7	3	42	35·2	9·5	7	13·2
Mon.	20	57	11	35·4	63	37	33·1	3	16	38·1	2	47	50·7	10·5	8	1·1
Tues.	21	70	9	25·6	76	47	31·9	2	16	26·3	1	42	43·4	11·5	8	53·1
Wed.	22	83	32	5·1	90	23	9·6	S.1	7	3·3	S.0	29	52·6	12·5	9	49·2
Thur.	23	97	20	41·2	104	24	27·1	N.0	8	17·9	N.0	46	52·8	13·5	10	48·7
Frid.	24	111	34	3·9	118	48	58·3	1	25	13·3	2	2	38·0	14·5	11	49·9
Sat.	25	126	8	26·7	133	31	38·0	2	38	22·5	3	11	44·4	15·5	12	50·7
Sun.	26	140	57	32·9	148	25	7·8	3	42	1·8	4	8	37·9	16·5	13	49·3
Mon.	27	155	53	16·2	163	20	53·7	4	31	0·0	4	48	43·7	17·5	14	45·1
Tues.	28	170	46	57·5	178	10	30·3	5	1	30·2	5	9	10·8	18·5	15	38·1
Wed.	29	185	30	41·9	192	46	52·5	5	11	43·1	5	9	12·0	19·5	16	29·2
Thur.	30	199	58	30·0	207	5	12·4	5	1	49·2	4	49	51·0	20·5	17	19·3
Frid.	31	214	6	46·6	221	3	6·6	4	33	38·9	4	13	36·5	21·5	18	9·4
Sat.	32	227	54	15·6	234	40	19·7	N.3	50	9·4	N.3	23	45·8	22·5	19	0·3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^s .	Hours.	Right Ascension.	Declination.	1
<i>WEDNESDAY 1.</i>				<i>FRIDAY 3.</i>			
0	^h 11 ^m 50 ^s 35·53	N. 6° 40' 53" 1	136·66	0	^h 13 ^m 34 ^s 14·53	S. 4° 25' 30" 5	
1	11 52 47·80	6 27 13·2	136·95	1	13 36 22·84	4 39 7·2	
2	11 54 59·89	6 13 31·4	137·24	2	13 38 31·17	4 52 42·0	
3	11 57 11·81	5 59 48·0	137·50	3	13 40 39·51	5 6 14·8	
4	11 59 23·57	5 46 3·0	137·76	4	13 42 47·88	5 19 45·6	
5	12 1 35·15	5 32 16·4	138·00	5	13 44 56·27	5 33 14·4	
6	12 3 46·58	5 18 28·4	138·23	6	13 47 4·69	5 46 40·9	
7	12 5 57·85	5 4 39·1	138·44	7	13 49 13·15	6 0 5·2	
8	12 8 8·97	4 50 48·4	138·64	8	13 51 21·64	6 13 27·3	
9	12 10 19·94	4 36 56·5	138·83	9	13 53 30·17	6 26 46·9	
10	12 12 30·76	4 23 3·6	139·00	10	13 55 38·74	6 40 4·1	
11	12 14 41·45	4 9 9·6	139·16	11	13 57 47·36	6 53 18·8	
12	12 16 51·99	3 55 14·6	139·31	12	13 59 56·03	7 6 30·9	
13	12 19 2·40	3 41 18·7	139·44	13	14 2 4·75	7 19 40·4	
14	12 21 12·69	3 27 22·1	139·56	14	14 4 13·54	7 32 47·1	
15	12 23 22·85	3 13 24·8	139·67	15	14 6 22·38	7 45 51·1	
16	12 25 32·89	2 59 26·8	139·76	16	14 8 31·28	7 58 52·2	
17	12 27 42·81	2 45 28·2	139·84	17	14 10 40·25	8 11 50·4	
18	12 29 52·62	2 31 29·2	139·91	18	14 12 49·29	8 24 45·6	
19	12 32 2·32	2 17 29·7	139·96	19	14 14 58·41	8 37 37·7	
20	12 34 11·92	2 3 30·0	140·00	20	14 17 7·60	8 50 26·8	
21	12 36 21·42	1 49 29·9	140·03	21	14 19 16·86	9 3 12·6	
22	12 38 30·82	1 35 29·7	140·05	22	14 21 26·22	9 15 55·2	
23	12 40 40·13	N. 1° 21' 29" 4	140·05	23	14 23 35·65	S. 9° 28' 34" 5	
<i>THURSDAY 2.</i>				<i>SATURDAY 4.</i>			
0	12 42 49·34	N. 1° 7' 29" 1	140·05	0	14 25 45·18	S. 9° 41' 10" 3	
1	12 44 58·47	0 53 28·8	140·03	1	14 27 54·80	9 53 42·7	
2	12 47 7·53	0 39 28·6	139·99	2	14 30 4·50	10 6 11·7	
3	12 49 16·51	0 25 28·7	139·95	3	14 32 14·31	10 18 37·0	
4	12 51 25·42	N. 0° 11' 29" 0	139·89	4	14 34 24·21	10 30 58·6	
5	12 53 34·26	S. 0° 2' 30" 3	139·81	5	14 36 34·22	10 43 16·6	
6	12 55 43·03	0 16 29·2	139·73	6	14 38 44·33	10 55 30·8	
7	12 57 51·74	0 30 27·6	139·63	7	14 40 54·54	11 7 41·1	
8	13 0 0·40	0 44 25·4	139·52	8	14 43 4·87	11 19 47·5	
9	13 2 9·00	0 58 22·5	139·40	9	14 45 15·30	11 31 50·0	
10	13 4 17·56	1 12 18·9	139·27	10	14 47 25·85	11 43 48·4	
11	13 6 26·07	1 26 14·5	139·12	11	14 49 36·51	11 55 42·7	
12	13 8 34·55	1 40 9·2	138·96	12	14 51 47·29	12 7 32·9	
13	13 10 42·98	1 54 3·0	138·79	13	14 53 58·19	12 19 18·8	
14	13 12 51·39	2 7 55·7	138·60	14	14 56 9·22	12 31 0·5	
15	13 14 59·76	2 21 47·3	138·41	15	14 58 20·37	12 42 37·7	
16	13 17 8·11	2 35 37·7	138·20	16	15 0 31·64	12 54 10·6	
17	13 19 16·44	2 49 26·9	137·98	17	15 2 43·03	13 5 39·0	
18	13 21 24·76	3 3 14·8	137·76	18	15 4 54·58	13 17 2·9	
19	13 23 33·06	3 17 1·3	137·54	19	15 7 6·23	13 28 22·1	
20	13 25 41·35	3 30 46·4	137·28	20	15 9 18·05	13 39 36·7	
21	13 27 49·64	3 44 29·9	136·98	21	15 11 29·98	13 50 46·5	
22	13 29 57·93	3 58 11·8	136·71	22	15 13 42·05	14 1 51·5	
23	13 32 6·23	4 11 52·0	136·41	23	15 15 54·26	14 12 51·7	
24	13 34 14·53	S. 4° 25' 30" 5		24	15 18 6·60	S. 14° 23' 47" 0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
SUNDAY 5.				TUESDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 18 6.60	S. 14 23 47.0	108.38	0	17 6 47.66	S. 21 13 16.0	58.04
1	15 20 19.09	14 34 37.3	107.54	1	17 9 6.65	21 19 4.3	56.82
2	15 22 31.72	14 45 22.5	106.69	2	17 11 25.74	21 24 45.1	55.38
3	15 24 44.49	14 56 2.7	105.83	3	17 13 44.91	21 30 18.6	54.34
4	15 26 57.41	15 6 37.7	104.96	4	17 16 4.18	21 35 44.7	53.10
5	15 29 10.47	15 17 7.4	104.08	5	17 18 23.52	21 41 3.3	51.85
6	15 31 23.67	15 27 31.9	103.19	6	17 20 42.95	21 46 14.5	50.60
7	15 33 37.02	15 37 51.1	102.29	7	17 23 2.45	21 51 18.1	49.35
8	15 35 50.52	15 48 4.8	101.38	8	17 25 22.03	21 56 14.1	48.09
9	15 38 4.17	15 58 13.1	100.46	9	17 27 41.67	22 1 2.7	46.82
10	15 40 17.97	16 8 15.9	99.53	10	17 30 1.38	22 5 43.6	45.55
11	15 42 31.91	16 18 13.1	98.60	11	17 32 21.15	22 10 16.9	44.28
12	15 44 46.01	16 28 4.7	97.65	12	17 34 40.97	22 14 42.6	43.00
13	15 47 0.25	16 37 50.5	96.69	13	17 37 0.85	22 19 0.6	41.72
14	15 49 14.64	16 47 30.7	95.72	14	17 39 20.79	22 23 11.0	40.44
15	15 51 29.18	16 57 5.0	94.75	15	17 41 40.76	22 27 13.6	39.16
16	15 53 43.87	17 6 33.5	93.76	16	17 44 0.78	22 31 8.5	37.87
17	15 55 58.70	17 15 56.1	92.77	17	17 46 20.84	22 34 55.8	36.58
18	15 58 13.69	17 25 12.7	91.77	18	17 48 40.93	22 38 35.2	35.29
19	16 0 28.82	17 34 23.3	90.76	19	17 51 1.06	22 42 6.9	33.99
20	16 2 44.11	17 43 27.8	89.74	20	17 53 21.20	22 45 30.9	32.69
21	16 4 59.54	17 52 26.3	88.71	21	17 55 41.37	22 48 47.1	31.40
22	16 7 15.12	18 1 18.5	87.67	22	17 58 1.55	22 51 55.4	30.10
23	16 9 30.84	S. 18 10 4.6	86.63	23	18 0 21.74	S. 22 54 56.0	28.79
MONDAY 6.				WEDNESDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 11 46.71	S. 18 18 44.3	85.58	0	18 2 41.95	S. 22 57 48.8	27.49
1	16 14 2.72	18 27 17.8	84.52	1	18 5 2.16	23 0 33.7	26.19
2	16 16 18.88	18 35 44.9	83.45	2	18 7 22.36	23 3 10.8	24.88
3	16 18 35.18	18 44 5.6	82.37	3	18 9 42.56	23 5 40.1	23.58
4	16 20 51.62	18 52 19.8	81.28	4	18 12 2.75	23 8 1.6	22.27
5	16 23 8.20	19 0 27.6	80.19	5	18 14 22.92	23 10 15.2	20.96
6	16 25 24.92	19 8 28.7	79.09	6	18 16 43.07	23 12 21.0	19.65
7	16 27 41.78	19 16 23.2	77.98	7	18 19 3.20	23 14 18.9	18.34
8	16 29 58.78	19 24 11.1	76.86	8	18 21 23.29	23 16 9.0	17.04
9	16 32 15.90	19 31 52.3	75.74	9	18 23 43.36	23 17 51.2	15.73
10	16 34 33.17	19 39 26.7	74.60	10	18 26 3.38	23 19 25.5	14.42
11	16 36 50.56	19 46 54.3	73.46	11	18 28 23.35	23 20 52.0	13.11
12	16 39 8.09	19 54 15.1	72.31	12	18 30 43.28	23 22 10.7	11.80
13	16 41 25.74	20 1 29.0	71.16	13	18 33 3.15	23 23 21.5	10.49
14	16 43 43.52	20 8 35.9	70.00	14	18 35 22.97	23 24 24.5	9.19
15	16 46 1.42	20 15 35.9	68.83	15	18 37 42.72	23 25 19.6	7.89
16	16 48 19.44	20 22 28.9	67.66	16	18 40 2.40	23 26 6.9	6.59
17	16 50 37.58	20 29 14.9	66.48	17	18 42 22.01	23 26 46.5	5.29
18	16 52 55.84	20 35 53.7	65.29	18	18 44 41.54	23 27 18.2	3.99
19	16 55 14.21	20 42 25.5	64.10	19	18 47 0.99	23 27 42.1	2.70
20	16 57 32.69	20 48 50.0	62.90	20	18 49 20.36	23 27 58.3	1.40
21	16 59 51.28	20 55 7.4	61.69	21	18 51 39.63	23 28 6.8	0.12
22	17 2 9.97	21 1 17.5	60.48	22	18 53 58.81	23 28 7.5	1.17
23	17 4 28.77	21 7 20.4	59.26	23	18 56 17.89	23 28 0.5	2.45
24	17 6 47.66	S. 21 13 16.0		24	18 58 36.86	S. 23 27 45.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^s .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^s .
THURSDAY 9.				SATURDAY 11.			
0	18 58 36 ⁸⁶	S. 23 27 45 ⁷	3 ⁷³	0	20 46 26 ⁰⁶	S. 20 54 33 ⁹	
1	19 0 55 ⁷³	23 27 23 ⁴	5 ⁰⁰	1	20 48 35 ³⁶	20 48 41 ⁴	
2	19 3 14 ⁴⁸	23 26 53 ³	6 ²⁸	2	20 50 44 ³⁹	20 42 43 ¹	
3	19 5 33 ¹¹	23 26 15 ⁷	7 ⁵⁵	3	20 52 53 ¹⁷	20 36 39 ⁰	
4	19 7 51 ⁶²	23 25 30 ⁴	8 ⁸¹	4	20 55 1 ⁶⁸	20 30 29 ²	
5	19 10 10 ⁰⁰	23 24 37 ⁵	10 ⁰⁸	5	20 57 9 ⁹⁴	20 24 13 ⁸	
6	19 12 28 ²⁵	23 23 37 ¹	11 ³³	6	20 59 17 ⁹³	20 17 52 ⁷	
7	19 14 46 ³⁷	23 22 29 ¹	12 ⁵⁹	7	21 1 25 ⁶⁶	20 11 26 ¹	
8	19 17 4 ³⁴	23 21 13 ⁵	13 ⁸⁴	8	21 3 33 ¹²	20 4 54 ⁰	
9	19 19 22 ¹⁷	23 19 50 ⁵	15 ⁰⁸	9	21 5 40 ³²	19 58 16 ⁵	
10	19 21 39 ⁸⁵	23 18 20 ⁰	16 ³²	10	21 7 47 ²⁶	19 51 33 ⁶	
11	19 23 57 ³⁷	23 16 42 ¹	17 ⁵⁶	11	21 9 53 ⁹³	19 44 45 ³	
12	19 26 14 ⁷⁴	23 14 56 ⁷	18 ⁷⁹	12	21 12 0 ³⁴	19 37 51 ⁸	
13	19 28 31 ⁹⁵	23 13 3 ⁹	20 ⁰²	13	21 14 6 ⁴⁸	19 30 53 ⁰	
14	19 30 48 ⁹⁹	23 11 3 ⁸	21 ²⁴	14	21 16 12 ³⁶	19 23 49 ⁰	
15	19 33 5 ⁸⁶	23 8 56 ⁴	22 ⁴⁵	15	21 18 17 ⁹⁷	19 16 39 ⁹	
16	19 35 22 ⁵⁶	23 6 41 ⁷	23 ⁶⁶	16	21 20 23 ³¹	19 9 25 ⁸	
17	19 37 39 ⁰⁸	23 4 19 ⁷	24 ⁸⁷	17	21 22 28 ³⁹	19 2 6 ⁶	
18	19 39 55 ⁴²	23 1 50 ⁵	26 ⁰⁷	18	21 24 33 ²¹	18 54 42 ⁴	
19	19 42 11 ⁵⁸	22 59 14 ¹	27 ²⁶	19	21 26 37 ⁷⁶	18 47 13 ³	
20	19 44 27 ⁵⁵	22 56 30 ⁵	28 ⁴⁴	20	21 28 42 ⁰⁴	18 39 39 ⁴	
21	19 46 43 ³²	22 53 39 ⁹	29 ⁶²	21	21 30 46 ⁰⁶	18 32 0 ⁶	
22	19 48 58 ⁹¹	22 50 42 ¹	30 ⁸⁰	22	21 32 49 ⁸²	18 24 17 ¹	
23	19 51 14 ²⁹	S. 22 47 37 ³	31 ⁹⁷	23	21 34 53 ³¹	S. 18 16 28 ⁸	
FRIDAY 10.				SUNDAY 12.			
0	19 53 29 ⁴⁷	S. 22 44 25 ⁵	33 ¹³	0	21 36 56 ⁵⁴	S. 18 8 35 ⁹	
1	19 55 44 ⁴⁵	22 41 6 ⁸	34 ²⁸	1	21 38 59 ⁵¹	18 0 38 ⁴	
2	19 57 59 ²²	22 37 41 ¹	35 ⁴³	2	21 41 2 ²²	17 52 36 ³	
3	20 0 13 ⁷⁷	22 34 8 ⁶	36 ⁵⁷	3	21 43 4 ⁶⁶	17 44 29 ⁷	
4	20 2 28 ¹²	22 30 29 ²	37 ⁷⁰	4	21 45 6 ⁸⁵	17 36 18 ⁷	
5	20 4 42 ²⁴	22 26 43 ⁰	38 ⁸²	5	21 47 8 ⁷⁸	17 28 3 ³	
6	20 6 56 ¹⁵	22 22 50 ⁰	39 ⁹⁴	6	21 49 10 ⁴⁵	17 19 43 ⁵	
7	20 9 9 ⁸³	22 18 50 ⁴	41 ⁰⁵	7	21 51 11 ⁸⁷	17 11 19 ⁵	
8	20 11 23 ²⁹	22 14 44 ¹	42 ¹⁶	8	21 53 13 ⁰³	17 2 51 ²	
9	20 13 36 ⁵²	22 10 31 ¹	43 ²⁵	9	21 55 13 ⁹⁴	16 54 18 ⁷	
10	20 15 49 ⁵²	22 6 11 ⁶	44 ³⁴	10	21 57 14 ⁵⁹	16 45 42 ⁰	
11	20 18 2 ²⁸	22 1 45 ⁶	45 ⁴²	11	21 59 15 ⁰⁰	16 37 1 ³	
12	20 20 14 ⁸¹	21 57 13 ⁰	46 ⁵⁰	12	22 1 15 ¹⁵	16 28 16 ⁶	
13	20 22 27 ¹⁰	21 52 34 ¹	47 ⁵⁶	13	22 3 15 ⁰⁶	16 19 27 ⁸	
14	20 24 39 ¹⁵	21 47 48 ⁷	48 ⁶²	14	22 5 14 ⁷²	16 10 35 ²	
15	20 26 50 ⁹⁷	21 42 57 ⁰	49 ⁶⁷	15	22 7 14 ¹⁴	16 1 38 ⁶	
16	20 29 2 ⁵³	21 37 59 ⁰	50 ⁷¹	16	22 9 13 ³¹	15 52 38 ²	
17	20 31 13 ⁸⁵	21 32 54 ⁷	51 ⁷⁴	17	22 11 12 ²⁴	15 43 34 ¹	
18	20 33 24 ⁹³	21 27 44 ³	52 ⁷⁷	18	22 13 10 ⁹⁴	15 34 26 ¹	
19	20 35 35 ⁷⁵	21 22 27 ⁶	53 ⁷⁹	19	22 15 9 ³⁹	15 25 14 ⁶	
20	20 37 46 ³²	21 17 4 ⁹	54 ⁸⁰	20	22 17 7 ⁶¹	15 15 59 ³	
21	20 39 56 ⁶⁴	21 11 36 ¹	55 ⁸⁰	21	22 19 5 ⁵⁹	15 6 40 ⁵	
22	20 42 6 ⁷⁰	21 6 1 ³	56 ⁷⁹	22	22 21 3 ³⁵	14 57 18 ¹	
23	20 44 16 ⁵¹	21 0 20 ⁶	57 ⁷⁸	23	22 23 0 ⁸⁷	14 47 52 ³	
24	20 46 26 ⁰⁶	S. 20 54 33 ⁹		24	22 24 58 ¹⁶	S. 14 38 22 ⁹	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
MONDAY 13.				WEDNESDAY 15.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	22 24 58.16	S. 14 38 22.9	95.45	0	23 55 11.52	S. 6 10 8.8	114.02
1	22 26 55.23	14 28 50.2	96.01	1	23 57 1.01	5 58 44.7	114.24
2	22 28 52.08	14 19 14.2	96.56	2	23 58 50.41	5 47 19.3	114.46
3	22 30 48.70	14 9 34.8	97.10	3	0 0 39.74	5 35 52.5	114.67
4	22 32 45.11	13 59 52.2	97.64	4	0 2 29.00	5 24 24.5	114.87
5	22 34 41.30	13 50 6.3	98.17	5	0 4 18.19	5 12 55.3	115.07
6	22 36 37.28	13 40 17.3	98.69	6	0 6 7.32	5 1 24.8	115.27
7	22 38 33.05	13 30 25.2	99.20	7	0 7 56.38	4 49 53.2	115.45
8	22 40 28.60	13 20 30.0	99.70	8	0 9 45.39	4 38 20.5	115.64
9	22 42 23.95	13 10 31.8	100.20	9	0 11 34.34	4 26 46.7	115.81
10	22 44 19.09	13 0 30.6	100.69	10	0 13 23.24	4 15 11.8	115.98
11	22 46 14.04	12 50 26.5	101.17	11	0 15 12.10	4 3 35.9	116.14
12	22 48 8.78	12 40 19.5	101.64	12	0 17 0.91	3 51 59.1	116.30
13	22 50 3.33	12 30 9.7	102.10	13	0 18 49.68	3 40 21.3	116.45
14	22 51 57.68	12 19 57.1	102.56	14	0 20 38.42	3 28 42.5	116.60
15	22 53 51.84	12 9 41.7	103.01	15	0 22 27.12	3 17 3.0	116.74
16	22 55 45.82	11 59 23.6	103.46	16	0 24 15.80	3 5 22.5	116.87
17	22 57 39.61	11 49 2.9	103.89	17	0 26 4.45	2 53 41.3	117.00
18	22 59 33.21	11 38 39.5	104.32	18	0 27 53.08	2 41 59.3	117.12
19	23 1 26.64	11 28 13.6	104.74	19	0 29 41.70	2 30 16.6	117.23
20	23 3 19.89	11 17 45.1	105.16	20	0 31 30.30	2 18 33.2	117.34
21	23 5 12.96	11 7 14.2	105.57	21	0 33 18.90	2 6 49.2	117.45
22	23 7 5.87	10 56 40.8	105.97	22	0 35 7.49	1 55 4.5	117.54
23	23 8 58.60	S. 10 46 5.0	106.36	23	0 36 56.08	S. 1 43 19.2	117.64
TUESDAY 14.				THURSDAY 16.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	23 10 51.17	S. 10 35 26.8	106.75	0	0 38 44.67	S. 1 31 33.4	117.72
1	23 12 43.58	10 24 46.3	107.13	1	0 40 33.27	1 19 47.1	117.80
2	23 14 35.83	10 14 3.6	107.50	2	0 42 21.89	1 8 0.3	117.87
3	23 16 27.92	10 3 18.6	107.87	3	0 44 10.52	0 56 13.0	117.94
4	23 18 19.86	9 52 31.4	108.22	4	0 45 59.16	0 44 25.4	118.00
5	23 20 11.65	9 41 42.0	108.58	5	0 47 47.83	0 32 37.3	118.06
6	23 22 3.29	9 30 50.6	108.92	6	0 49 36.53	0 20 49.0	118.11
7	23 23 54.79	9 19 57.1	109.26	7	0 51 25.25	S. 0 9 0.3	118.16
8	23 25 46.15	9 9 1.5	109.59	8	0 53 14.01	N. 0 2 48.6	118.19
9	23 27 37.37	8 58 4.0	109.92	9	0 55 2.81	0 14 37.8	118.23
10	23 29 28.46	8 47 4.5	110.23	10	0 56 51.65	0 26 27.2	118.25
11	23 31 19.42	8 36 3.1	110.55	11	0 58 40.54	0 38 16.7	118.27
12	23 33 10.25	8 24 59.8	110.85	12	1 0 29.47	0 50 6.3	118.29
13	23 35 0.96	8 13 54.7	111.15	13	1 2 18.46	1 1 56.1	118.30
14	23 36 51.54	8 2 47.8	111.44	14	1 4 7.50	1 13 45.9	118.30
15	23 38 42.01	7 51 39.2	111.73	15	1 5 56.60	1 25 35.7	118.30
16	23 40 32.37	7 40 28.8	112.00	16	1 7 45.77	1 37 25.5	118.29
17	23 42 22.61	7 29 16.8	112.28	17	1 9 35.00	1 49 15.2	118.27
18	23 44 12.75	7 18 3.1	112.54	18	1 11 24.31	2 1 4.8	118.25
19	23 46 2.78	7 6 47.9	112.81	19	1 13 13.70	2 12 54.4	118.23
20	23 47 52.72	6 55 31.0	113.06	20	1 15 3.17	2 24 43.7	118.19
21	23 49 42.55	6 44 12.7	113.31	21	1 16 52.72	2 36 32.9	118.15
22	23 51 32.30	6 32 52.8	113.55	22	1 18 42.36	2 48 21.8	118.11
23	23 53 21.95	6 21 31.5	113.79	23	1 20 32.09	3 0 10.4	118.05
24	23 55 11.52	S. 6 10 8.8		24	1 22 21.92	N. 3 11 58.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
FRIDAY 17.				SUNDAY 19.			
	^h ^m ^s	^{N.} [°] ['] ["]	["]		^h ^m ^s	^{N.} [°] ['] ["]	["]
0	1 22 21.92	3 11 58.7	117.99	0	2 53 27.43	12 19 6.3	106.82
1	1 24 11.85	3 23 46.7	117.93	1	2 55 26.95	12 29 47.3	106.39
2	1 26 1.89	3 35 34.3	117.86	2	2 57 26.77	12 40 25.6	105.94
3	1 27 52.03	3 47 21.4	117.78	3	2 59 26.89	12 51 1.2	105.49
4	1 29 42.29	3 59 8.1	117.70	4	3 1 27.31	13 1 34.2	105.03
5	1 31 32.67	4 10 54.3	117.61	5	3 3 28.04	13 12 4.3	104.55
6	1 33 23.17	4 22 40.0	117.51	6	3 5 29.07	13 22 31.6	104.07
7	1 35 13.79	4 34 25.0	117.41	7	3 7 30.42	13 32 56.1	103.58
8	1 37 4.55	4 46 9.5	117.30	8	3 9 32.09	13 43 17.5	103.07
9	1 38 55.43	4 57 53.3	117.18	9	3 11 34.07	13 53 36.0	102.56
10	1 40 46.46	5 9 36.3	117.06	10	3 13 36.38	14 3 51.3	102.04
11	1 42 37.63	5 21 18.7	116.93	11	3 15 39.02	14 14 3.5	101.50
12	1 44 28.94	5 33 0.3	116.79	12	3 17 41.98	14 24 12.5	100.96
13	1 46 20.41	5 44 41.0	116.65	13	3 19 45.28	14 34 18.3	100.40
14	1 48 12.03	5 56 20.9	116.50	14	3 21 48.92	14 44 20.7	99.84
15	1 50 3.80	6 7 59.9	116.34	15	3 23 52.89	14 54 19.7	99.26
16	1 51 55.74	6 19 37.9	116.18	16	3 25 57.21	15 4 15.3	98.67
17	1 53 47.85	6 31 15.0	116.00	17	3 28 1.87	15 14 7.3	98.07
18	1 55 40.13	6 42 51.0	115.82	18	3 30 6.88	15 23 55.8	97.46
19	1 57 32.58	6 54 25.9	115.64	19	3 32 12.25	15 33 40.6	96.84
20	1 59 25.21	7 5 59.8	115.44	20	3 34 17.96	15 43 21.6	96.21
21	2 1 18.02	7 17 32.4	115.24	21	3 36 24.04	15 52 58.9	95.57
22	2 3 11.02	7 29 3.9	115.04	22	3 38 30.47	16 2 32.3	94.91
23	2 5 4.21	N. 7 40 34.1	114.82	23	3 40 37.26	N. 16 12 1.8	94.25
SATURDAY 18.				MONDAY 20.			
	^h ^m ^s	^{N.} [°] ['] ["]	["]		^h ^m ^s	^{N.} [°] ['] ["]	["]
0	2 6 57.60	8 3 52.3	114.59	0	3 42 44.42	16 21 27.3	93.57
1	2 8 51.18	8 3 30.6	114.36	1	3 44 51.94	16 30 48.7	92.88
2	2 10 44.96	8 14 56.8	114.13	2	3 46 59.83	16 40 5.9	92.18
3	2 12 38.95	8 26 21.6	113.88	3	3 49 8.10	16 49 19.0	91.46
4	2 14 33.14	8 37 44.8	113.63	4	3 51 16.74	16 58 27.8	90.74
5	2 16 27.55	8 49 6.6	113.37	5	3 53 25.75	17 7 32.2	90.00
6	2 18 22.19	9 0 26.8	113.10	6	3 55 35.15	17 16 32.2	89.25
7	2 20 17.04	9 11 45.4	112.82	7	3 57 44.92	17 25 27.8	88.49
8	2 22 12.12	9 23 2.3	112.53	8	3 59 55.07	17 34 18.7	87.72
9	2 24 7.43	9 34 17.5	112.24	9	4 2 5.61	17 43 5.0	86.93
10	2 26 2.97	9 45 30.9	111.94	10	4 4 16.53	17 51 46.6	86.14
11	2 27 58.76	9 56 42.6	111.63	11	4 6 27.84	18 0 23.5	85.33
12	2 29 54.78	10 7 52.3	111.31	12	4 8 39.54	18 8 55.4	84.51
13	2 31 51.06	10 19 0.2	110.99	13	4 10 51.63	18 17 22.4	83.67
14	2 33 47.58	10 30 6.1	110.65	14	4 13 4.11	18 25 44.5	82.82
15	2 35 44.36	10 41 10.1	110.31	15	4 15 16.99	18 34 1.4	81.96
16	2 37 41.39	10 52 11.9	109.96	16	4 17 30.26	18 42 13.2	81.09
17	2 39 38.69	11 3 11.7	109.60	17	4 19 43.93	18 50 19.7	80.20
18	2 41 36.26	11 14 9.3	109.23	18	4 21 57.99	18 58 20.9	79.30
19	2 43 34.09	11 25 4.6	108.85	19	4 24 12.44	19 6 16.7	78.39
20	2 45 32.20	11 35 57.7	108.46	20	4 26 27.30	19 14 7.1	77.46
21	2 47 30.58	11 46 48.5	108.07	21	4 28 42.56	19 21 51.8	76.52
22	2 49 29.25	11 57 36.9	107.66	22	4 30 58.21	19 29 31.0	75.57
23	2 51 28.20	12 8 22.9	107.24	23	4 33 14.26	19 37 4.4	74.60
24	2 53 27.43	N. 12 19 6.3		24	4 35 30.71	N. 19 44 32.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
TUESDAY 21.				THURSDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 35 30.71	N. 19 44 32.0	73.62	0	6 32 1.63	N. 23 23 41.6	11.80
1	4 37 47.56	19 51 53.8	72.63	1	6 34 35.08	23 24 52.4	10.25
2	4 40 4.82	19 59 9.6	71.63	2	6 37 8.76	23 25 53.9	8.69
3	4 42 22.47	20 6 19.3	70.61	3	6 39 42.67	23 26 46.1	7.12
4	4 44 40.52	20 13 23.0	69.57	4	6 42 16.79	23 27 28.8	5.55
5	4 46 58.97	20 20 20.4	68.53	5	6 44 51.12	23 28 2.1	3.97
6	4 49 17.83	20 27 11.6	67.47	6	6 47 25.65	23 28 25.9	2.38
7	4 51 37.07	20 33 56.4	66.40	7	6 50 0.38	23 28 40.2	0.79
8	4 53 56.72	20 40 34.8	65.32	8	6 52 35.30	23 28 45.0	0.81
9	4 56 16.76	20 47 6.7	64.22	9	6 55 10.39	23 28 40.1	2.41
10	4 58 37.20	20 53 32.0	63.11	10	6 57 45.66	23 28 25.7	4.02
11	5 0 58.04	20 59 50.6	61.98	11	7 0 21.09	23 28 1.6	5.63
12	5 3 19.26	21 6 2.5	60.85	12	7 2 56.68	23 27 27.8	7.23
13	5 5 40.88	21 12 7.6	59.70	13	7 5 32.42	23 26 44.4	8.85
14	5 8 2.89	21 18 5.8	58.53	14	7 8 8.30	23 25 51.3	10.48
15	5 10 25.29	21 23 57.0	57.36	15	7 10 44.31	23 24 48.5	12.11
16	5 12 48.08	21 29 41.2	56.17	16	7 13 20.44	23 23 35.8	13.75
17	5 15 11.25	21 35 18.2	54.97	17	7 15 56.70	23 22 13.3	15.39
18	5 17 34.80	21 40 48.0	53.75	18	7 18 33.06	23 20 41.0	17.03
19	5 19 58.74	21 46 10.5	52.52	19	7 21 9.52	23 18 58.8	18.68
20	5 22 23.05	21 51 25.6	51.28	20	7 23 46.08	23 17 6.7	20.33
21	5 24 47.73	21 56 33.3	50.03	21	7 26 22.71	23 15 4.7	21.98
22	5 27 12.78	22 1 33.5	48.76	22	7 28 59.43	23 12 52.9	23.63
23	5 29 38.21	N. 22 6 26.0	47.48	23	7 31 36.22	N. 23 10 31.1	25.29
WEDNESDAY 22.				FRIDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	5 32 4.00	N. 22 11 10.9	46.19	0	7 34 13.06	N. 23 7 59.3	26.88
1	5 34 30.15	22 15 48.1	44.89	1	7 36 49.96	23 5 18.0	28.53
2	5 36 56.66	22 20 17.4	43.57	2	7 39 26.90	23 2 26.9	30.17
3	5 39 23.53	22 24 38.8	42.24	3	7 42 3.87	22 59 25.9	31.81
4	5 41 50.75	22 28 52.3	40.90	4	7 44 40.87	22 56 15.0	33.45
5	5 44 18.31	22 32 57.6	39.55	5	7 47 17.89	22 52 54.3	35.09
6	5 46 46.22	22 36 54.9	38.18	6	7 49 54.92	22 49 23.7	36.73
7	5 49 14.47	22 40 44.0	36.80	7	7 52 31.95	22 45 43.3	38.36
8	5 51 43.05	22 44 24.8	35.42	8	7 55 8.98	22 41 53.2	40.00
9	5 54 11.96	22 47 57.3	34.02	9	7 57 45.99	22 37 53.2	41.63
10	5 56 41.19	22 51 21.4	32.61	10	8 0 22.98	22 33 43.4	43.25
11	5 59 10.74	22 54 37.1	31.19	11	8 2 59.94	22 29 23.9	44.87
12	6 1 40.61	22 57 44.2	29.75	12	8 5 36.87	22 24 54.7	46.50
13	6 4 10.79	23 0 42.7	28.31	13	8 8 13.75	22 20 15.7	48.11
14	6 6 41.28	23 3 32.5	26.85	14	8 10 50.57	22 15 27.0	49.72
15	6 9 12.07	23 6 13.6	25.39	15	8 13 27.33	22 10 28.7	51.32
16	6 11 43.15	23 8 45.9	23.91	16	8 16 4.03	22 5 20.8	52.92
17	6 14 14.52	23 11 9.4	22.43	17	8 18 40.65	22 0 3.3	54.51
18	6 16 46.17	23 13 24.0	20.94	18	8 21 17.19	21 54 36.2	56.09
19	6 19 18.09	23 15 29.6	19.44	19	8 23 53.63	21 48 59.7	57.66
20	6 21 50.28	23 17 26.3	17.93	20	8 26 29.98	21 43 13.7	59.23
21	6 24 22.74	23 19 13.8	16.41	21	8 29 6.23	21 37 18.3	60.79
22	6 26 55.46	23 20 52.3	14.88	22	8 31 42.36	21 31 13.6	62.34
23	6 29 28.43	23 22 21.5	13.34	23	8 34 18.38	21 24 59.5	63.89
24	6 32 1.63	N. 23 23 41.6		24	8 36 54.27	N. 21 18 36.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
SATURDAY 25.				MONDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 36 54.27	N. 21 18 36.2	65.43	0	10 37 33.04	N. 13 33 17.4	124.01
1	8 39 30.03	21 12 3.6	66.96	1	10 39 57.53	13 20 53.3	124.84
2	8 42 5.65	21 5 21.8	68.48	2	10 42 21.75	13 8 24.3	125.65
3	8 44 41.13	20 58 31.0	69.99	3	10 44 45.69	12 55 50.4	126.45
4	8 47 16.46	20 51 31.0	71.49	4	10 47 9.36	12 43 11.7	127.22
5	8 49 51.63	20 44 22.1	72.98	5	10 49 32.76	12 30 28.4	127.98
6	8 52 26.64	20 37 4.2	74.46	6	10 51 55.88	12 17 40.5	128.72
7	8 55 1.48	20 29 37.5	75.93	7	10 54 18.73	12 4 48.1	129.45
8	8 57 36.15	20 22 1.9	77.38	8	10 56 41.32	11 51 51.4	130.15
9	9 0 10.64	20 14 17.6	78.83	9	10 59 3.63	11 38 50.5	130.84
10	9 2 44.94	20 6 24.7	80.26	10	11 1 25.68	11 25 45.5	131.51
11	9 5 19.05	19 58 23.1	81.69	11	11 3 47.46	11 12 36.4	132.17
12	9 7 52.96	19 50 13.0	83.10	12	11 6 8.98	10 59 23.4	132.80
13	9 10 26.67	19 41 54.4	84.50	13	11 8 30.24	10 46 6.6	133.42
14	9 13 0.18	19 33 27.4	85.88	14	11 10 51.23	10 32 46.0	134.02
15	9 15 33.47	19 24 52.1	87.26	15	11 13 11.97	10 19 21.9	134.61
16	9 18 6.56	19 16 8.5	88.62	16	11 15 32.45	10 5 54.3	135.17
17	9 20 39.42	19 7 16.8	89.96	17	11 17 52.67	9 52 23.2	135.72
18	9 23 12.05	18 58 17.1	91.29	18	11 20 12.64	9 38 48.9	136.25
19	9 25 44.46	18 49 9.3	92.61	19	11 22 32.37	9 25 11.5	136.73
20	9 28 16.65	18 39 53.6	93.92	20	11 24 51.84	9 11 30.9	137.26
21	9 30 48.59	18 30 30.1	95.21	21	11 27 11.07	8 57 47.4	137.73
22	9 33 20.30	18 20 58.9	96.48	22	11 29 30.06	8 44 1.0	138.19
23	9 35 51.76	N. 18 11 20.0	97.74	23	11 31 48.81	N. 8 30 11.8	138.64
SUNDAY 26.				TUESDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 38 22.98	N. 18 1 33.6	98.98	0	11 34 7.32	N. 8 16 20.0	139.06
1	9 40 53.95	17 51 39.7	100.21	1	11 36 25.60	8 2 25.7	139.47
2	9 43 24.67	17 41 38.4	101.43	2	11 38 43.65	7 48 28.9	139.86
3	9 45 55.14	17 31 29.8	102.63	3	11 41 1.46	7 34 29.7	140.23
4	9 48 25.35	17 21 14.0	103.81	4	11 43 19.06	7 20 28.3	140.59
5	9 50 55.31	17 10 51.2	104.98	5	11 45 36.43	7 6 24.8	140.93
6	9 53 25.00	17 0 21.3	106.13	6	11 47 53.57	6 52 19.2	141.25
7	9 55 54.42	16 49 44.5	107.27	7	11 50 10.51	6 38 11.7	141.56
8	9 58 23.59	16 39 0.9	108.39	8	11 52 27.23	6 24 2.3	141.85
9	10 0 52.48	16 28 10.6	109.49	9	11 54 43.74	6 9 51.2	142.12
10	10 3 21.11	16 17 13.6	110.58	10	11 57 0.04	5 55 38.5	142.38
11	10 5 49.46	16 6 10.1	111.67	11	11 59 16.14	5 41 24.2	142.62
12	10 8 17.55	15 55 0.2	112.71	12	12 1 32.03	5 27 8.5	142.85
13	10 10 45.36	15 43 44.0	113.74	13	12 3 47.73	5 12 51.4	143.06
14	10 13 12.89	15 32 21.6	114.76	14	12 6 3.23	4 58 33.0	143.25
15	10 15 40.15	15 20 53.0	115.77	15	12 8 18.55	4 44 13.6	143.43
16	10 18 7.14	15 9 18.4	116.75	16	12 10 33.68	4 29 53.0	143.59
17	10 20 33.84	14 57 37.9	117.72	17	12 12 48.63	4 15 31.5	143.73
18	10 23 0.28	14 45 51.6	118.67	18	12 15 3.40	4 1 9.1	143.86
19	10 25 26.43	14 33 59.5	119.61	19	12 17 17.99	3 46 45.9	143.98
20	10 27 52.31	14 22 1.9	120.52	20	12 19 32.41	3 32 22.1	144.07
21	10 30 17.90	14 9 58.8	121.42	21	12 21 46.66	3 17 57.6	144.16
22	10 32 43.23	13 57 50.2	122.30	22	12 24 0.74	3 3 32.7	144.22
23	10 35 8.27	13 45 36.4	123.17	23	12 26 14.67	2 49 7.4	144.28
24	10 37 33.04	N. 13 33 17.4		24	12 28 28.44	N. 2 34 41.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
<i>WEDNESDAY 29.</i>				<i>FRIDAY 31.</i>			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	12 28 28.44	N. 2 34 41.7	144.31	0	14 13 39.49	S. 8 36 18.9	130.02
1	12 30 42.06	2 20 15.8	144.34	1	14 15 50.20	8 49 19.0	129.42
2	12 32 55.52	2 5 49.8	144.34	2	14 18 0.93	9 2 15.5	128.81
3	12 35 8.85	1 51 23.7	144.34	3	14 20 11.69	9 15 8.3	128.19
4	12 37 22.03	1 36 57.7	144.31	4	14 22 22.48	9 27 57.5	127.56
5	12 39 35.07	1 22 31.8	144.28	5	14 24 33.31	9 40 42.9	126.93
6	12 41 47.97	1 8 6.2	144.22	6	14 26 44.18	9 53 24.4	126.28
7	12 44 0.75	0 53 40.9	144.16	7	14 28 55.08	10 6 2.1	125.62
8	12 46 13.40	0 39 15.9	144.07	8	14 31 6.03	10 18 35.8	124.95
9	12 48 25.92	0 24 51.5	143.98	9	14 33 17.03	10 31 5.5	124.27
10	12 50 38.33	N. 0 10 27.6	143.87	10	14 35 28.07	10 43 31.1	123.57
11	12 52 50.62	S. 0 3 55.6	143.74	11	14 37 39.17	10 55 52.5	122.87
12	12 55 2.80	0 18 18.1	143.60	12	14 39 50.32	11 8 9.7	122.17
13	12 57 14.87	0 32 39.7	143.45	13	14 42 1.53	11 20 22.7	121.45
14	12 59 26.84	0 47 0.4	143.29	14	14 44 12.80	11 32 31.4	120.72
15	13 1 38.72	1 1 20.1	143.11	15	14 46 24.13	11 44 35.7	119.97
16	13 3 50.50	1 15 38.8	142.91	16	14 48 35.53	11 56 35.6	119.22
17	13 6 2.18	1 29 56.2	142.70	17	14 50 46.99	12 8 30.9	118.46
18	13 8 13.78	1 44 12.5	142.48	18	14 52 58.53	12 20 21.7	117.69
19	13 10 25.29	1 58 27.4	142.25	19	14 55 10.13	12 32 7.8	116.91
20	13 12 36.72	2 12 40.9	142.00	20	14 57 21.81	12 43 49.3	116.12
21	13 14 48.08	2 26 52.9	141.74	21	14 59 33.56	12 55 26.0	115.32
22	13 16 59.36	2 41 3.4	141.47	22	15 1 45.39	13 6 57.9	114.51
23	13 19 10.58	S. 2 55 12.2	141.18	23	15 3 57.30	S. 13 18 25.0	113.69
<i>THURSDAY 30.</i>				<i>SATURDAY, FEB. 1.</i>			
0	13 21 21.73	S. 3 9 19.3	140.88	0	15 6 9.29	S. 13 29 47.1	
1	13 23 32.82	3 23 24.6	140.57				
2	13 25 43.85	3 37 28.0	140.25				
3	13 27 54.82	3 51 29.5	139.91				
4	13 30 5.75	4 5 28.9	139.56				
5	13 32 16.63	4 19 26.3	139.19				
6	13 34 27.47	4 33 21.5	138.82				
7	13 36 38.27	4 47 14.4	138.43				
8	13 38 49.04	5 1 5.0	138.03				
9	13 40 59.77	5 14 53.2	137.62				
10	13 43 10.48	5 28 38.9	137.19				
11	13 45 21.17	5 42 22.0	136.76				
12	13 47 31.83	5 56 2.6	136.31				
13	13 49 42.48	6 9 40.4	135.85				
14	13 51 53.12	6 23 15.5	135.37				
15	13 54 3.74	6 36 47.7	134.89				
16	13 56 14.37	6 50 17.1	134.39				
17	13 58 24.98	7 3 43.4	133.89				
18	14 0 35.60	7 17 6.7	133.37				
19	14 2 46.22	7 30 26.9	132.84				
20	14 4 56.85	7 43 44.0	132.30				
21	14 7 7.48	7 56 57.7	131.74				
22	14 9 18.13	8 10 8.2	131.18				
23	14 11 28.80	8 23 15.2	130.60				
24	14 13 39.49	S. 8 36 18.9					

PHASES OF THE MOON.

☾ Last Quarter .. 2 4 12.6
 ● New Moon 9 11 10.3
 ☽ First Quarter .. 17 14 42.8
 ○ Full Moon 24 22 12.1
 ☾ Last Quarter... 31 13 14.6

☾ Apogee 14 18
 ☾ Perigee 26 16

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	P. L. of diff.
		^o ⁱ ^u		^o ⁱ ^u		^o ⁱ ^u		^o ⁱ ^u	
1	Pollux W.	63 52 59	2294	65 39 7	2299	67 25 8	2304	69 11 1	2310
	Regulus W.	28 1 4	2310	29 46 49	2312	31 32 31	2314	33 18 10	2318
	Antares E.	72 49 11	2308	71 3 23	2315	69 17 45	2321	67 32 16	2328
	Mars E.	87 17 38	2505	85 36 31	2510	83 55 31	2516	82 14 40	2522
	Venus E.	89 40 1	2672	88 2 44	2678	86 25 35	2685	84 48 35	2692
	SUN E.	105 25 53	2593	103 46 48	2599	102 7 52	2605	100 29 4	2612
2	Pollux W.	77 58 23	2340	79 43 25	2345	81 28 19	2352	83 13 3	2359
	Regulus W.	42 5 1	2340	43 50 3	2345	45 34 57	2350	47 19 44	2356
	Antares E.	58 47 30	2366	57 3 7	2374	55 18 55	2383	53 34 56	2392
	Mars E.	73 52 36	2554	72 12 38	2562	70 32 51	2568	68 53 12	2576
	Venus E.	76 45 49	2726	75 9 43	2733	73 33 47	2741	71 58 1	2747
	SUN E.	92 17 20	2645	90 39 26	2653	89 1 43	2659	87 24 8	2667
3	Pollux W.	91 54 18	2392	93 38 4	2399	95 21 40	2407	97 5 5	2413
	Regulus W.	56 1 27	2387	57 45 21	2393	59 29 6	2400	61 12 41	2406
	Saturn W.	- - -	- - -	- - -	- - -	16 33 1	2460	18 15 11	2455
	Antares E.	44 58 24	2443	43 15 50	2454	41 33 32	2466	39 51 31	2479
	Mars E.	60 37 29	2612	58 58 50	2619	57 20 21	2627	55 42 3	2634
	Venus E.	64 1 34	2785	62 26 46	2792	60 52 8	2800	59 17 40	2808
	SUN E.	79 18 45	2703	77 42 9	2711	76 5 44	2719	74 29 29	2726
4	Regulus W.	69 48 14	2441	71 30 51	2447	73 13 19	2455	74 55 36	2461
	Saturn W.	26 46 22	2465	28 28 25	2469	30 10 22	2474	31 52 12	2480
	Spica ♏ W.	17 4 31	2819	18 38 34	2763	20 13 50	2722	21 50 1	2691
	Mars E.	47 33 2	2672	45 55 45	2680	44 18 38	2688	42 41 42	2696
	Venus E.	51 27 52	2847	49 54 25	2855	48 21 8	2863	46 48 1	2871
	SUN E.	66 30 46	2765	64 55 32	2772	63 20 28	2781	61 45 35	2789
5	Regulus W.	83 24 33	2497	85 5 50	2505	86 46 57	2512	88 27 53	2520
	Saturn W.	40 19 23	2510	42 0 23	2516	43 41 14	2522	45 21 56	2529
	Spica ♏ W.	29 58 28	2619	31 36 57	2615	33 15 31	2613	34 54 9	2612
	Mars E.	34 39 37	2735	33 3 44	2743	31 28 1	2752	29 52 30	2760
	Venus E.	39 5 1	2911	37 32 56	2919	36 1 1	2927	34 29 16	2935
	SUN E.	53 53 42	2828	52 19 51	2836	50 46 10	2844	49 12 39	2852
6	Saturn W.	53 43 2	2565	55 22 45	2572	57 2 18	2580	58 41 41	2587
	Spica ♏ W.	43 7 16	2619	44 45 45	2624	46 24 8	2627	48 2 26	2632
	Mars E.	21 57 41	2805	20 23 19	2815	18 49 10	2824	17 15 13	2833
	Venus E.	26 53 12	2978	25 22 31	2986	23 52 1	2994	22 21 41	3004
	SUN E.	41 27 47	2894	39 55 20	2903	38 23 5	2912	36 51 1	2920
7	Saturn W.	66 55 58	2627	68 34 17	2634	70 12 26	2643	71 50 23	2651
	Spica ♏ W.	56 12 9	2661	57 49 42	2668	59 27 5	2674	61 4 20	2681
	SUN E.	29 13 29	2966	27 42 33	2975	26 11 49	2985	24 41 17	2994
11	Jupiter E.	77 58 58	2938	76 27 27	2948	74 56 9	2957	73 25 2	2966
	α Arietis E.	87 29 1	3044	85 59 43	3055	84 30 38	3064	83 1 44	3074
12	SUN W.	28 55 35	3356	30 18 42	3365	31 41 39	3372	33 4 28	3380
	Jupiter E.	65 52 18	3010	64 22 17	3018	62 52 27	3026	61 22 46	3035
	α Arietis E.	75 40 14	3123	74 12 32	3134	72 45 3	3143	71 17 45	3154
13	SUN W.	39 56 19	3416	41 18 18	3423	42 40 9	3429	44 1 53	3434
	Jupiter E.	53 56 48	3071	52 28 3	3078	50 59 26	3084	49 30 57	3091

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
1	Pollux	W.	70 56 46 2315		72 42 23 2321		74 27 52 2327		76 13 12 2333	
	Regulus	W.	35 3 43 2321		36 49 12 2325		38 34 35 2330		40 19 51 2334	
	Antares	E.	65 46 58 2335		64 1 49 2343		62 16 52 2350		60 32 5 2358	
	Mars	E.	80 33 57 2528		78 53 23 2535		77 12 58 2541		75 32 42 2548	
	Venus	E.	83 11 44 2699		81 35 2 2705		79 58 28 2712		78 22 4 2719	
	SUN	E.	98 50 25 2618		97 11 55 2625		95 33 34 2632		93 55 22 2639	
2	Pollux	W.	84 57 37 2365		86 42 2 2372		88 26 17 2378		90 10 23 2386	
	Regulus	W.	49 4 22 2362		50 48 51 2368		52 33 12 2374		54 17 24 2380	
	Antares	E.	51 51 10 2402		50 7 38 2411		48 24 19 2421		46 41 14 2431	
	Mars	E.	67 13 44 2583		65 34 25 2591		63 55 17 2597		62 16 18 2604	
	Venus	E.	70 22 24 2754		68 46 56 2763		67 11 39 2769		65 36 31 2778	
	SUN	E.	85 46 44 2674		84 9 29 2681		82 32 24 2690		80 55 30 2696	
3	Pollux	W.	98 48 21 2421		100 31 26 2429		102 14 20 2435		103 57 5 2443	
	Regulus	W.	62 56 7 2413		64 39 23 2419		66 22 30 2427		68 5 27 2434	
	Saturn	W.	19 57 28 2455		21 39 45 2455		23 22 1 2458		25 4 13 2460	
	Antares	E.	38 9 48 2494		36 28 26 2507		34 47 23 2523		33 6 42 2541	
	Mars	E.	54 3 54 2642		52 25 56 2649		50 48 8 2657		49 10 30 2664	
	Venus	E.	57 43 22 2816		56 9 15 2823		54 35 17 2832		53 1 30 2838	
	SUN	E.	72 53 24 2734		71 17 29 2742		69 41 45 2749		68 6 10 2757	
4	Regulus	W.	76 37 44 2469		78 19 41 2475		80 1 29 2483		81 43 6 2490	
	Saturn	W.	33 33 54 2485		35 15 29 2491		36 56 55 2497		38 38 13 2502	
	Spica 𐄂	W.	23 26 53 2667		25 4 17 2649		26 42 5 2637		28 20 10 2627	
	Mars	E.	41 4 56 2703		39 28 20 2711		37 51 55 2719		36 15 40 2728	
	Venus	E.	45 15 5 2878		43 42 18 2887		42 9 42 2894		40 37 16 2903	
	SUN	E.	60 10 52 2796		58 36 19 2804		57 1 56 2812		55 27 44 2820	
5	Regulus	W.	90 8 39 2527		91 49 15 2535		93 29 40 2543		95 9 54 2550	
	Saturn	W.	47 2 29 2536		48 42 52 2543		50 23 5 2550		52 3 9 2558	
	Spica 𐄂	W.	36 32 48 2611		38 11 28 2612		39 50 7 2614		41 28 43 2616	
	Mars	E.	28 17 9 2769		26 42 0 2777		25 7 2 2786		23 32 16 2795	
	Venus	E.	32 57 42 2944		31 26 19 2952		29 55 6 2960		28 24 3 2970	
	SUN	E.	47 39 19 2861		46 6 10 2869		44 33 11 2878		43 0 24 2886	
6	Saturn	W.	60 20 54 2595		61 59 56 2603		63 38 47 2610		65 17 28 2618	
	Spica 𐄂	W.	49 40 37 2637		51 18 42 2643		52 56 39 2649		54 34 28 2655	
	Mars	E.	- - - - -		- - - - -		- - - - -		- - - - -	
	Venus	E.	20 51 33 3012		19 21 35 3021		17 51 48 3031		16 22 13 3039	
	SUN	E.	35 19 8 2929		33 47 26 2938		32 15 55 2947		30 44 36 2957	
7	Saturn	W.	73 28 9 2660		75 5 43 2668		76 43 6 2676		78 20 18 2685	
	Spica 𐄂	W.	62 41 25 2689		64 18 20 2696		65 55 6 2704		67 31 41 2711	
	SUN	E.	- - - - -		- - - - -		- - - - -		- - - - -	
11	Jupiter	E.	71 54 7 2975		70 23 23 2985		68 52 51 2993		67 22 29 3002	
	α Arietis	E.	81 33 2 3083		80 4 32 3093		78 36 14 3103		77 8 8 3113	
12	SUN	W.	34 27 7 3388		35 49 37 3395		37 11 59 3402		38 34 13 3409	
	Jupiter	E.	59 53 16 3042		58 23 55 3050		56 54 44 3057		55 25 42 3064	
	α Arietis	E.	69 50 41 3163		68 23 48 3174		66 57 8 3185		65 30 41 3195	
13	SUN	W.	45 23 31 3440		46 45 2 3445		48 6 28 3449		49 27 49 3454	
	Jupiter	E.	48 2 36 3096		46 34 22 3102		45 6 15 3108		43 38 15 3113	

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	P. L. of diff.
13	α Arietis E.	64 4 26	3206	62 38 24	3217	61 12 35	3227	59 46 58	3239
14	SUN W.	50 49 5	3458	52 10 16	3462	53 31 23	3464	54 52 27	3467
	Jupiter E.	42 10 21	3118	40 42 33	3123	39 14 51	3127	37 47 14	3132
	α Arietis E.	52 42 18	3298	51 18 4	3312	49 54 6	3325	48 30 23	3339
	Aldebaran E.	82 29 5	3072	81 0 21	3076	79 31 42	3079	78 3 7	3082
15	SUN W.	61 37 9	3474	62 58 2	3475	64 18 54	3474	65 39 47	3473
	Jupiter E.	30 30 26	3151	29 3 18	3155	27 36 15	3159	26 9 17	3163
	α Arietis E.	41 36 18	3426	40 14 31	3447	38 53 8	3472	37 32 12	3498
	Aldebaran E.	70 40 49	3088	69 12 25	3089	67 44 2	3088	66 15 38	3088
16	SUN W.	72 24 38	3461	73 45 46	3456	75 6 59	3453	76 28 16	3447
	Fomalhaut W.	39 1 11	3565	40 20 24	3532	41 40 13	3501	43 0 36	3472
	Aldebaran E.	58 53 18	3078	57 24 41	3074	55 56 0	3071	54 27 15	3066
	Pollux E.	103 6 50	3089	101 38 27	3085	100 9 59	3081	98 41 26	3076
17	SUN W.	83 16 18	3415	84 38 18	3407	86 0 27	3399	87 22 45	3388
	Fomalhaut W.	49 49 52	3353	51 13 2	3332	52 36 37	3313	54 0 34	3292
	Aldebaran E.	47 1 57	3039	45 32 32	3031	44 2 58	3025	42 33 16	3016
	Pollux E.	91 17 3	3046	89 47 47	3038	88 18 21	3031	86 48 46	3022
18	SUN W.	94 17 10	3335	95 40 41	3324	97 4 25	3310	98 28 25	3297
	Fomalhaut W.	61 5 58	3199	62 32 8	3181	63 58 40	3164	65 25 32	3146
	α Pegasi W.	47 5 46	3772	48 21 17	3722	49 37 41	3677	50 54 53	3633
	Aldebaran E.	35 2 8	2973	33 31 21	2962	32 0 21	2954	30 29 10	2943
	Pollux E.	79 18 1	2973	77 47 14	2962	76 16 14	2951	74 45 0	2939
19	SUN W.	105 32 23	3226	106 58 2	3209	108 24 0	3194	109 50 17	3177
	Fomalhaut W.	72 45 15	3058	74 14 16	3040	75 43 39	3023	77 13 23	3005
	α Pegasi W.	57 32 5	3442	58 53 34	3408	60 15 41	3376	61 38 25	3343
	Jupiter W.	17 43 32	2981	19 14 9	2952	20 45 22	2926	22 17 8	2902
	Aldebaran E.	22 50 1	2894	21 17 35	2886	19 44 58	2880	18 12 13	2874
	Pollux E.	67 4 52	2875	65 32 1	2860	63 58 51	2846	62 25 23	2832
20	SUN W.	117 6 46	3091	118 35 7	3073	120 3 50	3054	121 32 56	3035
	α Pegasi W.	68 40 48	3202	70 6 55	3174	71 33 35	3149	73 0 45	3124
	α Arietis W.	- - -	-	- - -	-	- - -	-	- - -	-
	Jupiter W.	30 3 5	2797	31 37 37	2776	33 12 36	2757	34 48 0	2738
	Pollux E.	54 33 15	2756	52 57 49	2741	51 22 3	2725	49 45 56	2709
	Regulus E.	90 21 20	2737	88 45 29	2719	87 9 14	2702	85 32 37	2686
21	Jupiter W.	42 51 28	2641	44 29 27	2621	46 7 53	2602	47 46 45	2583
	α Arietis W.	36 46 0	2990	38 16 25	2943	39 47 49	2901	41 20 7	2860
	Pollux E.	41 40 5	2631	40 1 52	2616	38 23 19	2602	36 44 26	2588
	Regulus E.	77 23 43	2596	75 44 43	2580	74 5 20	2561	72 25 32	2543
	Saturn E.	120 40 10	2593	119 1 5	2575	117 21 36	2556	115 41 41	2538
22	Jupiter W.	56 7 34	2490	57 49 1	2472	59 30 54	2454	61 13 12	2436
	α Arietis W.	49 13 49	2689	50 50 44	2660	52 28 18	2631	54 6 31	2601
	Aldebaran W.	16 37 6	2510	18 18 6	2481	19 59 46	2455	21 42 3	2431
	Pollux E.	28 25 34	2531	26 45 4	2525	25 4 25	2520	23 23 40	2520
	Regulus E.	64 0 17	2454	62 17 59	2437	60 35 17	2420	58 52 11	2403
	Saturn E.	107 15 46	2447	105 33 18	2429	103 50 25	2412	102 7 7	2394

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
13	α Arietis	E.	58 21 35	3250	56 56 25	3261	55 31 28	3274	54 6 46	3286
14	SUN	W.	56 13 28	3470	57 34 26	3472	58 55 22	3473	60 16 16	3474
	Jupiter	E.	36 19 43	3135	34 52 16	3140	33 24 55	3143	31 57 38	3148
	α Arietis	E.	47 6 57	3355	45 43 49	3371	44 20 59	3387	42 58 28	3406
	Aldebaran	E.	76 34 35	3083	75 6 5	3086	73 37 38	3087	72 9 13	3088
15	SUN	W.	67 0 41	3472	68 21 37	3471	69 42 34	3467	71 3 35	3465
	Jupiter	E.	24 42 24	3168	23 15 37	3173	21 48 56	3180	20 22 23	3188
	α Arietis	E.	36 11 45	3527	34 51 51	3559	33 32 32	3596	32 13 53	3638
	Aldebaran	E.	64 47 14	3087	63 18 49	3085	61 50 21	3083	60 21 51	3081
16	SUN	W.	77 49 39	3442	79 11 8	3436	80 32 44	3430	81 54 27	3423
	Fomalhaut	W.	44 21 31	3447	45 42 55	3421	47 4 48	3398	48 27 7	3375
	Aldebaran	E.	52 58 24	3061	51 29 27	3056	50 0 24	3051	48 31 14	3045
	Pollux	E.	97 12 47	3071	95 44 2	3065	94 15 10	3059	92 46 10	3053
17	SUN	W.	88 45 15	3379	90 7 55	3368	91 30 48	3358	92 53 52	3346
	Fomalhaut	W.	55 24 55	3273	56 49 38	3254	58 14 43	3236	59 40 10	3218
	Aldebaran	E.	41 3 23	3009	39 33 21	3000	38 3 8	2990	36 32 43	2982
	Pollux	E.	85 19 0	3013	83 49 3	3003	82 18 54	2994	80 48 34	2984
18	SUN	W.	99 52 40	3284	101 17 10	3270	102 41 57	3255	104 7 1	3240
	Fomalhaut	W.	66 52 46	3129	68 20 21	3110	69 48 18	3093	71 16 36	3076
	α Pegasi	W.	52 12 52	3591	53 31 37	3551	54 51 5	3513	56 11 15	3477
	Aldebaran	E.	28 57 45	2934	27 26 9	2923	25 54 19	2913	24 22 16	2903
	Pollux	E.	73 13 30	2927	71 41 45	2913	70 9 44	2901	68 37 27	2887
19	SUN	W.	111 16 54	3161	112 43 50	3143	114 11 8	3126	115 38 46	3108
	Fomalhaut	W.	78 43 30	2988	80 13 58	2970	81 44 49	2952	83 16 2	2935
	α Pegasi	W.	63 1 45	3314	64 25 40	3285	65 50 9	3256	67 15 12	3228
	Jupiter	W.	23 49 24	2880	25 22 9	2859	26 55 21	2838	28 29 0	2818
	Aldebaran	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux	E.	60 51 37	2817	59 17 31	2802	57 43 6	2786	56 8 20	2772
20	SUN	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	α Pegasi	W.	74 28 25	3099	75 56 36	3076	77 25 15	3052	78 54 23	3030
	α Arietis	W.	30 55 37	3221	32 21 21	3155	33 48 24	3096	35 16 39	3042
	Jupiter	W.	36 23 50	2718	38 0 6	2699	39 36 47	2679	41 13 55	2661
	Pollux	E.	48 9 28	2693	46 32 38	2678	44 55 28	2662	43 17 57	2646
	Regulus	E.	83 55 38	2668	82 18 15	2650	80 40 28	2632	79 2 17	2615
21	Jupiter	W.	49 26 3	2564	51 5 47	2546	52 45 57	2527	54 26 33	2509
	α Arietis	W.	42 53 17	2821	44 27 17	2786	46 2 3	2751	47 37 35	2720
	Pollux	E.	35 5 14	2575	33 25 44	2562	31 45 57	2549	30 5 52	2540
	Regulus	E.	70 45 18	2525	69 4 40	2507	67 23 37	2490	65 42 9	2472
	Saturn	E.	114 1 21	2520	112 20 36	2502	110 39 25	2483	108 57 48	2465
22	Jupiter	W.	62 55 56	2419	64 39 4	2401	66 22 37	2384	68 6 35	2368
	α Arietis	W.	55 45 20	2578	57 24 45	2553	59 4 44	2530	60 45 15	2507
	Aldebaran	W.	23 24 54	2409	25 8 16	2387	26 52 9	2367	28 36 31	2348
	Pollux	E.	21 42 54	2524	20 2 14	2535	18 21 49	2553	16 41 50	2587
	Regulus	E.	57 8 40	2385	55 24 46	2370	53 40 28	2354	51 55 47	2338
	Saturn	E.	100 23 24	2377	98 39 16	2360	96 54 44	2343	95 9 47	2326

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
23	Jupiter W.	69 50 56	2351	71 35 41	2335	73 20 49	2320	75 6 19	2304
	α Arietis W.	62 26 19	2485	64 7 53	2465	65 49 56	2444	67 32 28	2425
	Aldebaran W.	30 21 20	2330	32 6 36	2311	33 52 19	2295	35 38 26	2278
	Regulus E.	50 10 43	2324	48 25 18	2308	46 39 30	2294	44 53 21	2280
	Saturn E.	93 24 26	2311	91 38 42	2295	89 52 35	2279	88 6 5	2264
	Spica π E.	104 10 24	2343	102 25 27	2326	100 40 6	2311	98 54 22	2295
24	Jupiter W.	83 59 13	2236	85 46 47	2223	87 34 40	2212	89 22 50	2201
	Aldebaran W.	44 34 50	2205	46 23 10	2192	48 11 50	2179	50 0 49	2168
	Regulus E.	35 57 47	2220	34 9 49	2211	32 21 37	2202	30 33 12	2194
	Saturn E.	79 8 14	2195	77 19 39	2184	75 30 47	2172	73 41 37	2161
	Spica π E.	90 0 19	2227	88 12 31	2214	86 24 24	2202	84 36 0	2192
25	Jupiter W.	98 27 31	2155	100 17 7	2147	102 6 54	2140	103 56 52	2134
	Aldebaran W.	59 9 45	2119	61 0 15	2112	62 50 56	2104	64 41 49	2098
	Saturn E.	64 31 54	2114	62 41 16	2107	60 50 28	2100	58 59 29	2094
	Spica π E.	75 30 15	2147	73 40 27	2141	71 50 30	2134	70 0 22	2129
26	Jupiter W.	113 8 38	2115	114 59 15	2113	116 49 54	2112	118 40 35	2111
	Aldebaran W.	73 58 18	2076	75 49 54	2074	77 41 33	2072	79 33 15	2072
	Pollux W.	30 3 2	2140	31 53 0	2131	33 43 12	2124	35 33 35	2118
	Saturn E.	49 42 38	2075	47 51 0	2073	45 59 19	2072	44 7 37	2072
	Spica π E.	60 48 8	2115	58 57 31	2113	57 6 52	2114	55 16 14	2115
27	Pollux W.	44 47 5	2107	46 37 54	2107	48 28 42	2109	50 19 28	2111
	Saturn E.	34 49 21	2081	32 57 53	2086	31 6 32	2091	29 15 19	2097
	Spica π E.	46 4 4	2136	44 14 0	2143	42 24 7	2153	40 34 28	2162
	Antares E.	91 53 53	2103	90 2 58	2105	88 12 7	2109	86 21 22	2113
	Mars E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
28	Pollux W.	59 32 1	2134	61 22 9	2140	63 12 7	2147	65 1 55	2155
	Regulus W.	23 40 13	2159	25 29 42	2161	27 19 9	2164	29 8 31	2169
	Saturn E.	20 2 15	2149	18 12 30	2165	- - -	- - -	- - -	- - -
	Spica π E.	31 30 45	2239	29 43 15	2262	27 56 19	2288	26 10 2	2318
	Antares E.	77 9 30	2143	75 19 37	2151	73 29 56	2160	71 40 28	2169
	Mars E.	111 43 45	2336	109 58 38	2344	108 13 42	2351	106 28 57	2361
29	Pollux W.	74 7 50	2198	75 56 20	2208	77 44 35	2219	79 32 35	2229
	Regulus W.	38 13 24	2200	40 1 51	2210	41 50 4	2219	43 38 4	2229
	Antares E.	62 36 42	2220	60 48 44	2233	59 1 5	2244	57 13 43	2258
	Mars E.	97 48 34	2410	96 5 13	2420	94 22 7	2431	92 39 17	2443
	Sun E.	123 30 29	2500	121 49 15	2510	120 8 16	2522	118 27 33	2533
30	Regulus W.	52 34 17	2282	54 20 43	2294	56 6 52	2305	57 52 44	2317
	Saturn W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Antares E.	48 21 52	2328	46 36 33	2344	44 51 37	2360	43 7 4	2377
	Mars E.	84 9 18	2505	82 28 11	2517	80 47 21	2530	79 6 49	2543
	Sun E.	110 8 5	2595	108 29 3	2608	106 50 19	2621	105 11 53	2634
31	Regulus W.	66 37 43	2378	68 21 49	2390	70 5 38	2403	71 49 8	2415
	Saturn W.	23 30 2	2389	25 13 53	2398	26 57 31	2408	28 40 54	2418
	Antares E.	34 30 48	2475	32 48 59	2498	31 7 43	2522	29 27 0	2550
	Mars E.	70 48 43	2609	68 5 0	2623	67 31 36	2636	65 53 30	2650
	Sun E.	97 4 12	2702	- - -	716	93 51 16	2730	92 15	2741

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
23	Jupiter W.	76 52 12	2290	78 38 26	2275	80 25 2	2262	82 11 58	2249
	α Arietis W.	69 15 27	2406	70 58 53	2389	72 42 43	2372	74 26 58	2356
	Aldebaran W.	37 24 58	2262	39 11 53	2247	40 59 10	2233	42 46 49	2218
	Regulus E.	43 6 52	2266	41 20 3	2254	39 32 55	2241	37 45 29	2231
	Saturn E.	86 19 13	2249	84 31 59	2235	82 44 24	2222	80 56 29	2209
	Spica ♀ E.	97 8 15	2281	95 21 47	2266	93 34 58	2252	91 47 48	2239
24	Jupiter W.	91 11 16	2190	92 59 59	2181	94 48 56	2171	96 38 7	2163
	Aldebaran W.	51 50 5	2157	53 39 37	2147	55 29 25	2137	57 19 28	2128
	Regulus E.	28 44 35	2187	26 55 48	2183	25 6 55	2181	23 17 59	2182
	Saturn E.	71 52 10	2151	70 2 28	2140	68 12 30	2132	66 22 19	2122
	Spica ♀ E.	82 47 20	2182	80 58 25	2172	79 9 15	2163	77 19 51	2155
25	Jupiter W.	105 47 0	2129	107 37 15	2124	109 27 37	2120	111 18 5	2117
	Aldebaran W.	66 32 51	2092	68 24 2	2087	70 15 21	2083	72 6 46	2079
	Saturn E.	57 8 21	2089	55 17 5	2085	53 25 42	2081	51 34 13	2077
	Spica ♀ E.	68 10 7	2124	66 19 45	2120	64 29 17	2117	62 38 44	2115
26	Jupiter W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Aldebaran W.	81 24 58	2071	83 16 42	2072	85 8 25	2072	87 0 7	2074
	Pollux W.	37 24 6	2113	39 14 45	2110	41 5 29	2108	42 56 16	2107
	Saturn E.	42 15 54	2072	40 24 12	2073	38 32 31	2075	36 40 54	2078
	Spica ♀ E.	53 25 38	2118	51 35 6	2120	49 44 38	2125	47 54 17	2130
27	Pollux W.	52 10 10	2114	54 0 48	2118	55 51 19	2122	57 41 44	2128
	Saturn E.	27 24 16	2104	25 33 23	2113	23 42 44	2124	21 52 21	2135
	Spica ♀ E.	38 45 3	2174	36 55 56	2187	35 7 9	2202	33 18 44	2219
	Antares E.	84 30 43	2118	82 40 11	2124	80 49 48	2130	78 59 34	2136
	Mars E.	118 45 49	2311	117 0 6	2316	115 14 30	2322	113 29 3	2328
28	Pollux W.	66 51 31	2162	68 40 56	2171	70 30 7	2179	72 19 6	2189
	Regulus W.	30 57 46	2172	32 46 56	2178	34 35 56	2185	36 24 46	2193
	Saturn E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Spica ♀ E.	24 24 29	2356	22 39 51	2401	20 56 17	2455	19 14 0	2524
	Antares E.	69 51 13	2178	68 2 12	2188	66 13 26	2198	64 24 56	2209
	Mars E.	104 44 26	2369	103 0 7	2380	101 16 2	2389	99 32 11	2398
29	Pollux W.	81 20 19	2241	83 7 46	2252	84 54 57	2263	86 41 51	2275
	Regulus W.	45 25 49	2238	47 13 20	2249	49 0 35	2260	50 47 34	2270
	Antares E.	55 26 41	2270	53 39 58	2284	51 53 35	2298	50 7 33	2313
	Mars E.	90 56 43	2455	89 14 26	2467	87 32 26	2480	85 50 44	2491
	SUN E.	116 47 6	2545	115 6 55	2558	113 27 2	2569	111 47 25	2582
30	Regulus W.	59 38 19	2328	61 23 37	2341	63 8 37	2353	64 53 19	2366
	Saturn W.	16 32 57	2364	18 17 24	2367	20 1 46	2373	21 45 59	2380
	Antares E.	41 22 56	2394	39 39 13	2413	37 55 57	2432	36 13 8	2453
	Mars E.	77 26 35	2556	75 46 40	2569	74 7 2	2583	72 27 43	2596
	SUN E.	103 33 44	2648	101 55 54	2661	100 18 22	2675	98 41 8	2688
31	Regulus W.	73 32 21	2428	75 15 16	2440	76 57 54	2453	78 40 14	2465
	Saturn W.	30 24 3	2429	32 6 56	2440	33 49 34	2450	35 31 57	2462
	Antares E.	27 46 56	2580	26 7 33	2613	24 28 56	2652	22 51 11	2695
	Mars E.	64 15 43	2663	62 38 13	2676	61 1 1	2690	59 24 7	2703
	SUN E.	90 39 33	2757	89 4 8	2771	87 29 2	2784	85 54 13	2798

CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 7^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>				<i>Apparent East.</i>			
1				○	2. 1	3.		4
2			2.	1	○	3.		4.
3				3. 2	○	1.		4.
4			3.	1	○	2.	4.	
5			3	2	○ 1.	4.		
6			2	4. 3	○			●
7		4.	4.	1.	○	2.	3	
8		4.			○	1	2.	3
9		4.		2.	1.	○	3.	
10	3.	○	4.		2	○	1.	
11		4		3.	1	○	2	
12			4	3		○	1.	○
13				2. 4	3	1	○	
14					1.	○	2.	3
15					○	1	2.	4
16				2.	1.	○	3.	4
17				2	○	3.	1	4
18			3.	1	○		2	4
19			3		○	2.	1.	4
20			2. 3	1	○			4.
21					○	4.		○ 1.
22					○	4.	2.	3
23				4.	2.	1.	○	3.
24			4.	2	○	3.	1	
25		4.		3.	1	○	2	
26		4.		3.		○	2.	1.
27		4		2. 3	1	○		
28	2	●	4			○	1. 3	
29			4			○	2.	3
30				4	2. 1.	○		3.
31				2	○	4.	1	3.

This Table represents, at 7^h after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page; —the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

DATE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.		h m s	h m s	
	1	1 15 31.8	19 58 21.7	Em.
	2	19 44 34.1	14 34 22.8	Em.
	4	14 13 32.8	9 10 20.2	Em.
	6*	8 42 34.9	3 46 21.0	Em.
	8	3 11 33.1	22 22 18.0	Em.
	9	21 40 36.4	16 58 20.0	Em.
	11	16 9 34.0	11 34 16.3	Em.
	13*	10 38 37.6	6 10 18.7	Em.
	15*	5 7 35.9	0 46 15.7	Em.
	16	23 36 39.2	19 22 17.7	Em.
	18	18 5 37.2	13 58 14.5	Em.
	20	12 34 39.8	8 34 15.8	Em.
	22*	7 3 38.4	3 10 13.2	Em.
	24	1 32 41.3	21 46 14.9	Em.
	25	20 1 40.1	16 22 12.3	Em.
	27	14 30 42.6	10 58 13.6	Em.
	29*	8 59 41.0	5 34 10.7	Em.
	31	3 28 43.7	0 10 12.2	Em.
I.	3*	12 14 20.0	7 6 51.2	Im.
	3	14 32 38.3	9 25 32.2	Em.
	7	1 32 25.2	20 38 57.2	Im.
	7	3 50 36.8	22 57 31.5	Em.
	10	14 50 28.3	10 11 1.0	Im.
	10	17 8 33.2	12 29 28.6	Em.
	14	4 8 30.6	23 43 4.1	Im.
	14*	6 26 28.1	2 1 24.3	Em.
	17	17 26 33.0	13 15 7.3	Im.
	17	19 44 24.1	15 33 21.1	Em.
	21*	6 44 34.5	2 47 9.6	Im.
	21*	9 2 19.2	5 5 16.9	Em.
	24	20 2 32.1	16 19 7.9	Im.
	24	22 20 13.0	18 37 11.5	Em.
	28*	9 20 33.3	5 51 9.9	Im.
	28	11 38 8.0	8 9 7.2	Em.
	31	22 38 32.3	19 23 9.7	Im.
	32	0 56 0.1	21 41 0.0	Em.
II.	6	20 52 19.8	15 58 5.8	Im.
	6	23 1 50.7	18 7 58.0	Em.
	14	0 54 36.0	20 28 37.7	Im.
	14	3 3 46.5	22 38 9.4	Em.
	21	4 56 54.8	0 59 12.2	Im.
	21*	7 5 47.8	3 8 26.3	Em.
	28*	8 59 44.5	5 30 17.7	Im.
	28*	11 8 21.4	7 39 15.7	Em.

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h
	2 11 3		1 13 46	1 16 2	1 15 11	1 17
	4* 5 39		3 8 21	3 10 37	3 9 47	3 11
	6* 0 14		5* 2 56	5* 5 13	5* 4 22	5* 6
	7 18 50		7 21 32	7 23 49	7 22 58	7* 1
	9 13 25	In	8 16 8	8 18 24	8 17 34	9 19
	11 8 1		10 10 43	10 13 0	10 12 10	10 14
	13* 2 37		12* 5 19	12* 7 36	12* 6 46	12 8
	15 21 13	the	14 23 55	14* 2 12	14* 1 22	14* 3
	16 15 49		15 18 31	16 20 48	16 19 57	16 22
	18 10 25		17 13 7	17 15 24	17 14 33	17 16
	20* 5 1	Shadow.	19 7 43	19 10 0	19 9 9	19 11
	22 23 37		21* 2 19	21* 4 36	21* 3 45	21* 5
	23 18 13		23 20 55	23 23 12	23 22 21	23 0
	25 12 49		24 15 31	24 17 48	24 16 56	24 19
	27* 7 26		26 10 8	26 12 24	26 11 32	26 13
	29* 2 2		28* 4 44	28* 7 1	28* 6 8	28 8
	30 20 39		30 23 20	30 1 37	30 0 44	30* 2
					31 19 20	32 21
II.	3* 4 19	3* 6 57	5 23 4	5* 1 42	1 12 8	1 14
	6 17 49	7 20 27	8 12 34	8 15 12	5* 1 41	5* 4
	10* 7 19	10 9 58	12* 2 5	12* 4 43	8 15 15	8 17
	14 20 50	14 23 29	15 15 36	15 18 15	12* 4 48	12* 7
	17 10 22	17 13 1	19* 5 8	19 7 47	15 18 22	16 20
	21 23 54	21* 2 33	22 18 41	23 21 20	19 7 56	19 10
	24 13 27	24 16 6	26 8 14	26 10 53	23 21 30	23 23
	28* 3 0	28* 5 40	30 21 47	30 0 27	26 11 3	26 13
	31 16 34	31 19 13			30 0 37	30* 2
III.	6 10 28	6 12 51	10* 0 40	10* 3 5	3* 1 39	3* 3
	13 14 53	13 17 19	17* 5 8	17* 7 34	10* 6 10	10 8
	20 19 23	21 21 50	24 9 40	24 12 8	17 10 40	17 12
	28 23 58	28* 2 26	31 14 17	31 16 45	24 15 11	24 17
					31 19 41	32 21

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^m .745186.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	-0.5590	+1.3005	-9.5223	+0.1202	^h 5 ^m 16 ^s 30.54	284	0	.000
2	0.5964	1.2989	9.5177	0.1148	5 12 34.63	285	1	.003
3	0.6306	1.2971	9.5130	0.1092	5 8 38.72	286	2	.005
4	-0.6623	+1.2952	-9.5083	+0.1032	5 4 42.81	287	3	.008
5	0.6916	1.2932	9.5036	0.0969	5 0 46.90	288	4	.011
6	0.7190	1.2910	9.4988	0.0904	4 56 50.98	289	5	.014
7	-0.7446	+1.2887	-9.4940	+0.0836	4 52 55.07	290	6	.016
8	0.7687	1.2862	9.4892	0.0764	4 48 59.16	291	7	.019
9	0.7913	1.2836	9.4844	0.0689	4 45 3.25	292	8	.022
10	-0.8127	+1.2808	-9.4796	+0.0611	4 41 7.34	293	9	.025
11	0.8330	1.2778	9.4747	0.0529	4 37 11.43	294	10	.027
12	0.8522	1.2747	9.4698	0.0444	4 33 15.52	295	11	.030
13	-0.8705	+1.2715	-9.4648	+0.0355	4 29 19.60	296	12	.033
14	0.8879	1.2681	9.4598	0.0262	4 25 23.69	297	13	.036
15	0.9045	1.2645	9.4548	0.0165	4 21 27.78	298	14	.038
16	-0.9204	+1.2607	-9.4498	+0.0065	4 17 31.87	299	15	.041
17	0.9355	1.2568	9.4448	9.9960	4 13 35.96	300	16	.044
18	0.9500	1.2527	9.4397	9.9851	4 9 40.05	301	17	.047
19	-0.9640	+1.2484	-9.4347	+9.9737	4 5 44.14	302	18	.049
20	0.9773	1.2439	9.4296	9.9618	4 1 48.23	303	19	.052
21	0.9901	1.2393	9.4245	9.9495	3 57 52.32	304	20	.055
22	-1.0024	+1.2345	-9.4194	+9.9367	3 53 56.41	305	21	.058
23	1.0142	1.2295	9.4143	9.9233	3 50 0.50	306	22	.060
24	1.0256	1.2242	9.4092	9.9094	3 46 4.59	307	23	.063
25	-1.0365	+1.2188	-9.4040	+9.8948	3 42 8.68	308	24	.066
26	1.0471	1.2132	9.3989	9.8797	3 38 12.76	309	25	.068
27	1.0573	1.2074	9.3937	9.8638	3 34 16.85	310	26	.071
28	-1.0670	+1.2013	-9.3886	+9.8473	3 30 20.94	311	27	.074
29	1.0765	1.1951	9.3834	9.8300	3 26 25.03	312	28	.077
30	1.0856	1.1886	9.3782	9.8119	3 22 29.12	313	29	.079
31	1.0944	1.1818	9.3730	9.7930	3 18 33.21	314	30	.082
32	-1.1028	+1.1749	-9.3678	+9.7731	3 14 37.30	315	31	.085

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	m s	s
Sat.	1	20 58 47.34	10.173	S. 17 8 41.2	42.98	1 8.20	13 54.34	0.315
Sun.	2	21 2 51.50	10.140	16 51 29.8	43.71	1 8.08	14 1.91	0.283
Mon.	3	21 6 54.86	10.105	16 34 0.7	44.43	1 7.97	14 8.70	0.249
Tues.	4	21 10 57.39	10.073	16 16 14.3	45.14	1 7.85	14 14.67	0.214
Wed.	5	21 14 59.14	10.039	15 58 11.0	45.82	1 7.74	14 19.85	0.180
Thur.	6	21 19 0.07	10.005	15 39 51.3	46.49	1 7.62	14 24.20	0.144
Frid.	7	21 23 0.19	9.973	15 21 15.5	47.15	1 7.51	14 27.75	0.110
Sat.	8	21 26 59.53	9.938	15 2 24.0	47.77	1 7.39	14 30.53	0.080
Sun.	9	21 30 58.05	9.905	14 43 17.5	48.39	1 7.28	14 32.50	0.049
Mon.	10	21 34 55.78	9.872	14 23 56.1	48.99	1 7.17	14 33.67	0.018
Tues.	11	21 38 52.71	9.840	14 4 20.4	49.57	1 7.06	14 34.04	0.010
Wed.	12	21 42 48.88	9.807	13 44 30.8	50.13	1 6.95	14 33.66	0.049
Thur.	13	21 46 44.25	9.775	13 24 27.7	50.67	1 6.84	14 32.48	0.080
Frid.	14	21 50 38.86	9.744	13 4 11.6	51.20	1 6.73	14 30.54	0.110
Sat.	15	21 54 32.72	9.712	12 43 42.8	51.70	1 6.63	14 27.85	0.144
Sun.	16	21 58 25.81	9.682	12 23 1.9	52.19	1 6.53	14 24.39	0.177
Mon.	17	22 2 18.17	9.652	12 2 9.3	52.67	1 6.43	14 20.21	0.209
Tues.	18	22 6 9.81	9.622	11 41 5.3	53.12	1 6.33	14 15.32	0.239
Wed.	19	22 10 0.73	9.593	11 19 50.4	53.56	1 6.23	14 9.69	0.269
Thur.	20	22 13 50.96	9.565	10 58 25.0	53.98	1 6.13	14 3.40	0.299
Frid.	21	22 17 40.53	9.538	10 36 49.5	54.38	1 6.04	13 56.42	0.319
Sat.	22	22 21 29.44	9.511	10 15 4.3	54.78	1 5.94	13 48.80	0.344
Sun.	23	22 25 17.71	9.485	9 53 9.7	55.15	1 5.85	13 40.54	0.370
Mon.	24	22 29 5.37	9.460	9 31 6.1	55.50	1 5.76	13 31.66	0.398
Tues.	25	22 32 52.42	9.437	9 8 54.2	55.85	1 5.68	13 22.19	0.418
Wed.	26	22 36 38.90	9.413	8 46 33.9	56.17	1 5.59	13 12.16	0.443
Thur.	27	22 40 24.82	9.391	8 24 5.9	56.47	1 5.51	13 1.54	0.464
Frid.	28	22 44 10.20	9.369	8 1 30.6	56.77	1 5.43	12 50.40	0.485
Sat.	29	22 47 55.06		S. 7 38 48.1		1 5.36	12 38.75	

* Mean Time of the Semidiameter passing may be found by subtracting 0^h.19 from the Sidereal Time

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Sat.	1	20 58 44·98	S. 17 8 51·1	16 14·8	13 54·26	20 44 50·72
Sun.	2	21 2 49·12	16 51 39·9	16 14·6	14 1·84	20 48 47·28
Mon.	3	21 6 52·47	16 34 11·1	16 14·5	14 8·64	20 52 43·83
Tues.	4	21 10 55·00	16 16 24·9	16 14·3	14 14·61	20 56 40·39
Wed.	5	21 14 56·74	15 58 21·9	16 14·1	14 19·80	21 0 36·94
Thur.	6	21 18 57·66	15 40 2·4	16 14·0	14 24·16	21 4 33·50
Frid.	7	21 22 57·78	15 21 26·8	16 13·8	14 27·72	21 8 30·06
Sat.	8	21 26 57·12	15 2 35·5	16 13·6	14 30·51	21 12 26·61
Sun.	9	21 30 55·65	14 43 29·1	16 13·4	14 32·48	21 16 23·17
Mon.	10	21 34 53·38	14 24 7·9	16 13·2	14 33·66	21 20 19·72
Tues.	11	21 38 50·32	14 4 32·4	16 13·1	14 34·04	21 24 16·28
Wed.	12	21 42 46·50	13 44 42·9	16 12·9	14 33·67	21 28 12·83
Thur.	13	21 46 41·88	13 24 39·9	16 12·7	14 32·50	21 32 9·38
Frid.	14	21 50 36·50	13 4 23·9	16 12·5	14 30·56	21 36 5·94
Sat.	15	21 54 30·37	12 43 55·2	16 12·3	14 27·88	21 40 2·49
Sun.	16	21 58 23·48	12 23 14·4	16 12·1	14 24·43	21 43 59·05
Mon.	17	22 2 15·86	12 2 21·8	16 11·9	14 20·26	21 47 55·60
Tues.	18	22 6 7·52	11 41 17·9	16 11·7	14 15·37	21 51 52·15
Wed.	19	22 9 58·46	11 20 3·0	16 11·5	14 9·75	21 55 48·71
Thur.	20	22 13 48·72	10 58 37·6	16 11·2	14 3·46	21 59 45·26
Frid.	21	22 17 38·31	10 37 2·1	16 11·0	13 56·49	22 3 41·82
Sat.	22	22 21 27·25	10 15 16·8	16 10·8	13 48·88	22 7 38·37
Sun.	23	22 25 15·54	9 53 22·2	16 10·6	13 40·62	22 11 34·92
Mon.	24	22 29 3·23	9 31 18·6	16 10·3	13 31·75	22 15 31·48
Tues.	25	22 32 50·31	9 9 6·6	16 10·1	13 22·28	22 19 28·03
Wed.	26	22 36 36·83	8 46 46·2	16 9·9	13 12·25	22 23 24·58
Thur.	27	22 40 22·78	8 24 18·1	16 9·6	13 1·64	22 27 21·14
Frid.	28	22 44 8·19	8 1 42·7	16 9·4	12 50·50	22 31 17·69
Sat.	29	22 47 53·09	S. 7 39 0·1	16 9·1	12 38·85	22 35 14·24

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	312° 13' 11" 9	N. 0° 79'	9.9937666	15 49' 4"	15 44' 0"	58 4' 0"	57 44' "
2	313 14 2 6	0 71	9.9938378	15 38 7	15 33 7	57 24 9	57 6
3	314 14 52 5	0 59	9.9939107	15 28 7	15 24 1	56 48 2	56 31
4	315 15 41 3	0 47	9.9939852	15 19 7	15 15 4	56 15 0	55 59
5	316 16 29 2	0 35	9.9940612	15 11 5	15 7 7	55 44 9	55 31
6	317 17 15 8	0 23	9.9941386	15 4 2	15 0 9	55 18 0	55 6
7	318 18 1 4	0 12	9.9942173	14 57 7	14 54 9	54 54 5	54 43
8	319 18 45 8	N. 0 01	9.9942971	14 52 3	14 49 9	54 34 4	54 25
9	320 19 28 8	S. 0 07	9.9943781	14 47 8	14 46 0	54 18 0	54 11
10	321 20 10 3	0 15	9.9944602	14 44 6	14 43 5	54 6 2	54 2
11	322 20 50 3	0 18	9.9945434	14 42 8	14 42 6	53 59 8	53 59
12	323 21 28 9	0 19	9.9946278	14 42 9	14 43 7	54 0 1	54 3
13	324 22 5 7	0 17	9.9947134	14 45 1	14 47 0	54 8 0	54 15
14	325 22 40 8	0 13	9.9948003	14 49 6	14 52 8	54 24 5	54 36
15	326 23 14 3	S. 0 06	9.9948885	14 56 7	15 1 3	54 50 5	55 7
16	327 23 45 9	N. 0 03	9.9949782	15 6 4	15 12 2	55 26 2	55 47
17	328 24 15 6	0 14	9.9950693	15 18 6	15 25 5	56 11 1	56 36
18	329 24 43 5	0 26	9.9951620	15 33 0	15 40 6	57 3 7	57 31
19	330 25 9 5	0 39	9.9952565	15 48 5	15 56 4	58 0 7	58 29
20	331 25 33 8	0 50	9.9953528	16 4 3	16 11 8	58 58 6	59 26
21	332 25 56 2	0 62	9.9954508	16 18 8	16 25 2	59 52 1	60 15
22	333 26 16 9	0 71	9.9955506	16 30 6	16 35 0	60 35 4	60 51
23	334 26 35 8	0 79	9.9956524	16 38 4	16 40 4	61 3 7	61 11
24	335 26 53 1	0 85	9.9957560	16 41 1	16 40 4	61 13 6	61 11
25	336 27 8 4	0 86	9.9958613	16 38 6	16 35 5	61 4 4	60 53
26	337 27 22 4	0 86	9.9959683	16 31 3	16 26 2	60 37 8	60 19
27	338 27 34 6	0 84	9.9960770	16 20 3	16 13 9	59 57 4	59 33
28	339 27 45 1	0 77	9.9961872	16 7 0	15 59 9	59 8 6	58 42
29	340 27 54 3	N. 0 69	9.9962988	15 52 7	15 45 7	58 16 3	57 50

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d ^m	^h ^m
Sat.	1	227 54 15.6	234 40 19.7	N.3 50 9.4	N.3 23 45.8	22.5	19 0.3
Sun.	2	241 21 31.8	247 58 7.8	2 54 52.5	2 23 58.2	23.5	19 52.2
Mon.	3	254 30 24.5	260 58 40.8	1 51 31.1	1 17 58.2	24.5	20 45.1
Tues.	4	267 23 16.1	273 44 28.9	N.0 43 45.9	N.0 9 21.1	25.5	21 38.2
Wed.	5	280 2 36.3	286 17 54.3	S.0 24 52.3	S.0 58 29.4	26.5	22 30.7
Thur.	6	292 30 37.7	298 40 59.1	1 31 8.6	2 2 28.2	27.5	23 21.5
Frid.	7	304 49 9.8	310 55 19.8	2 32 8.4	2 59 50.8	28.5	♂
Sat.	8	316 59 38.6	323 2 14.3	3 25 19.9	3 48 20.3	29.5	0 10.1
Sun.	9	329 3 16.0	335 2 51.7	4 8 40.3	4 26 8.8	0.8	0 56.1
Mon.	10	341 1 12.3	346 58 28.6	4 40 36.8	4 51 58.1	1.8	1 39.8
Tues.	11	352 54 53.9	358 50 43.2	5 0 7.5	5 5 1.2	2.8	2 21.6
Wed.	12	4 46 13.8	10 41 45.5	5 6 37.7	5 4 56.3	3.8	3 2.4
Thur.	13	16 37 41.1	22 34 25.1	4 59 57.8	4 51 44.3	4.8	3 42.9
Frid.	14	28 32 25.9	34 32 13.7	4 40 18.5	4 25 44.5	5.8	4 24.1
Sat.	15	40 34 20.3	46 39 20.4	4 8 7.3	3 47 33.8	6.8	5 6.9
Sun.	16	52 47 49.2	59 0 23.3	3 24 11.1	2 58 8.8	7.8	5 52.2
Mon.	17	65 17 39.7	71 40 13.0	2 29 37.4	1 58 51.3	8.8	6 40.9
Tues.	18	78 8 37.8	84 43 24.3	1 26 6.8	S.0 51 42.5	9.8	7 33.5
Wed.	19	91 24 59.1	98 13 41.2	S.0 16 1.9	N.0 20 28.7	10.8	8 30.0
Thur.	20	105 9 43.5	112 13 6.6	N.0 57 18.0	1 33 51.0	11.8	9 29.3
Frid.	21	119 23 41.7	126 41 6.4	2 9 29.9	2 43 33.3	12.8	10 30.0
Sat.	22	134 4 44.8	141 33 46.9	3 15 18.4	3 44 3.9	13.8	11 30.0
Sun.	23	149 7 10.9	156 43 43.3	4 9 8.5	4 29 57.3	14.8	12 28.2
Mon.	24	164 22 3.6	172 0 45.3	4 46 1.3	4 56 57.9	15.8	13 24.1
Tues.	25	179 38 22.8	187 13 33.6	5 2 34.9	5 2 50.3	16.8	14 18.0
Wed.	26	194 45 3.6	202 11 48.1	4 57 49.7	4 47 47.3	17.8	15 10.5
Thur.	27	209 32 55.9	216 47 47.6	4 33 5.0	4 14 9.6	18.8	16 2.6
Frid.	28	223 55 59.7	230 57 18.8	3 51 30.7	3 25 41.2	19.8	16 54.9
Sat.	29	237 51 44.5	244 39 26.1	N.2 57 13.9	N.2 26 41.5	20.8	17 47.8

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
SATURDAY 1.				MONDAY 3.			
0	^h 15 ^m 6 ^s 9.29	S. 13° 29' 47".1	112°.86	0	^h 16 ^m 53 ^s 39.65	S. 20° 42' 49".6	63°.74
1	15 8 21.36	13 41 4.3	112°.02	1	16 55 56.44	20 49 12.1	62°.56
2	15 10 33.52	13 52 16.4	111°.17	2	16 58 13.31	20 55 27.5	61°.37
3	15 12 45.76	14 3 23.4	110°.32	3	17 0 30.26	21 1 35.7	60°.18
4	15 14 58.08	14 14 25.3	109°.45	4	17 2 47.29	21 7 36.8	58°.99
5	15 17 10.50	14 25 22.0	108°.58	5	17 5 4.40	21 13 30.7	57°.78
6	15 19 23.01	14 36 13.5	107°.70	6	17 7 21.57	21 19 17.4	56°.58
7	15 21 35.61	14 46 59.7	106°.81	7	17 9 38.82	21 24 56.9	55°.37
8	15 23 48.31	14 57 40.6	105°.91	8	17 11 56.14	21 30 29.1	54°.16
9	15 26 1.10	15 8 16.0	105°.00	9	17 14 13.53	21 35 54.1	52°.94
10	15 28 13.99	15 18 46.1	104°.09	10	17 16 30.97	21 41 11.7	51°.72
11	15 30 26.97	15 29 10.6	103°.16	11	17 18 48.49	21 46 22.0	50°.49
12	15 32 40.05	15 39 29.5	102°.23	12	17 21 6.05	21 51 25.0	49°.27
13	15 34 53.23	15 49 42.9	101°.29	13	17 23 23.68	21 56 20.6	48°.04
14	15 37 6.52	15 59 50.7	100°.34	14	17 25 41.36	22 1 8.8	46°.80
15	15 39 19.90	16 9 52.7	99°.39	15	17 27 59.08	22 5 49.6	45.56
16	15 41 33.39	16 19 49.1	98°.42	16	17 30 16.86	22 10 23.0	44°.32
17	15 43 46.98	16 29 39.6	97°.45	17	17 32 34.68	22 14 48.9	43°.08
18	15 46 0.67	16 39 24.3	96°.47	18	17 34 52.55	22 19 7.3	41°.83
19	15 48 14.47	16 49 3.1	95°.48	19	17 37 10.45	22 23 18.3	40°.58
20	15 50 28.37	16 58 35.9	94°.48	20	17 39 28.38	22 27 21.8	39°.32
21	15 52 42.38	17 8 2.8	93°.48	21	17 41 46.35	22 31 17.7	38°.07
22	15 54 56.49	17 17 23.7	92°.46	22	17 44 4.35	22 35 6.1	36°.81
23	15 57 10.71	S. 17° 26' 38".5	91°.44	23	17 46 22.38	S. 22° 38' 47".0	35°.55
SUNDAY 2.				TUESDAY 4.			
0	15 59 25.03	S. 17° 35' 47".1	90°.42	0	17 48 40.42	S. 22° 42' 20".3	34°.29
1	16 1 39.46	17 44 49.6	89°.38	1	17 50 58.49	22 45 46.0	33°.02
2	16 3 54.00	17 53 45.9	88°.34	2	17 53 16.57	22 49 4.2	31°.76
3	16 6 8.65	18 2 36.0	87°.29	3	17 55 34.66	22 52 14.7	30°.49
4	16 8 23.40	18 11 19.7	86°.23	4	17 57 52.76	22 55 17.7	29°.22
5	16 10 38.25	18 19 57.1	85°.17	5	18 0 10.87	22 58 13.0	27°.96
6	16 12 53.22	18 28 28.1	84°.10	6	18 2 28.97	23 1 0.7	26°.69
7	16 15 8.28	18 36 52.7	83°.02	7	18 4 47.08	23 3 40.9	25°.42
8	16 17 23.45	18 45 10.8	81°.94	8	18 7 5.18	23 6 13.4	24°.15
9	16 19 38.73	18 53 22.4	80°.84	9	18 9 23.26	23 8 38.2	22°.88
10	16 21 54.11	19 1 27.5	79°.75	10	18 11 41.34	23 10 55.5	21°.60
11	16 24 9.59	19 9 26.0	78°.64	11	18 13 59.40	23 13 5.1	20°.33
12	16 26 25.17	19 17 17.8	77°.53	12	18 16 17.43	23 15 7.1	19°.07
13	16 28 40.85	19 25 3.0	76°.41	13	18 18 35.44	23 17 1.5	17°.79
14	16 30 56.64	19 32 41.5	75°.29	14	18 20 53.42	23 18 48.3	16°.52
15	16 33 12.51	19 40 13.2	74°.16	15	18 23 11.37	23 20 27.4	15°.25
16	16 35 28.49	19 47 38.1	73°.02	16	18 25 29.29	23 21 58.9	13°.98
17	16 37 44.57	19 54 56.2	71°.88	17	18 27 47.16	23 23 22.8	12°.71
18	16 40 0.73	20 2 7.5	70°.73	18	18 30 4.99	23 24 39.1	11°.44
19	16 42 17.00	20 9 11.9	69°.58	19	18 32 22.77	23 25 47.7	10°.17
20	16 44 33.35	20 16 9.4	68°.42	20	18 34 40.50	23 26 48.8	8°.91
21	16 46 49.79	20 23 0.0	67°.26	21	18 36 58.17	23 27 42.2	7°.64
22	16 49 6.33	20 29 43.5	66°.09	22	18 39 15.78	23 28 28.1	6°.37
23	16 51 22.95	20 36 20.1	64°.92	23	18 41 33.33	23 29 6.3	5°.11
24	16 53 39.65	S. 20° 42' 49".6		24	18 43 50.81	S. 23° 29' 37".0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
WEDNESDAY 5.				FRIDAY 7.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	18 43 50.81	S. 23 29 37.0	3.84	0	20 31 17.96	S. 21 32 13.7	51.99
1	18 46 8.22	23 30 0.0	2.58	1	20 33 27.82	21 27 1.7	53.01
2	18 48 25.55	23 30 15.5	1.33	2	20 35 37.46	21 21 43.6	54.02
3	18 50 42.80	23 30 23.5	0.07	3	20 37 46.87	21 16 19.5	55.02
4	18 52 59.96	23 30 23.9	1.18	4	20 39 56.05	21 10 49.4	56.02
5	18 55 17.04	23 30 16.8	2.43	5	20 42 5.01	21 5 13.3	57.01
6	18 57 34.03	23 30 2.2	3.68	6	20 44 13.74	20 59 31.2	57.99
7	18 59 50.92	23 29 40.2	4.93	7	20 46 22.23	20 53 43.3	58.96
8	19 2 7.72	23 29 10.6	6.17	8	20 48 30.50	20 47 49.6	59.92
9	19 4 24.41	23 28 33.6	7.41	9	20 50 38.53	20 41 50.0	60.88
10	19 6 40.99	23 27 49.2	8.64	10	20 52 46.33	20 35 44.8	61.83
11	19 8 57.46	23 26 57.3	9.87	11	20 54 53.90	20 29 33.8	62.77
12	19 11 13.82	23 25 58.1	11.10	12	20 57 1.23	20 23 17.2	63.70
13	19 13 30.06	23 24 51.5	12.32	13	20 59 8.32	20 16 55.0	64.62
14	19 15 46.18	23 23 37.5	13.54	14	21 1 15.18	20 10 27.3	65.54
15	19 18 2.18	23 22 16.3	14.76	15	21 3 21.80	20 3 54.0	66.45
16	19 20 18.05	23 20 47.7	15.97	16	21 5 28.18	19 57 15.4	67.35
17	19 22 33.78	23 19 11.8	17.18	17	21 7 34.32	19 50 31.3	68.24
18	19 24 49.38	23 17 28.7	18.39	18	21 9 40.22	19 43 41.8	69.12
19	19 27 4.83	23 15 38.4	19.59	19	21 11 45.88	19 36 47.1	70.00
20	19 29 20.14	23 13 40.9	20.79	20	21 13 51.29	19 29 47.1	70.87
21	19 31 35.31	23 11 36.1	21.98	21	21 15 56.47	19 22 41.9	71.73
22	19 33 50.33	23 9 24.3	23.16	22	21 18 1.41	19 15 31.5	72.58
23	19 36 5.19	S. 23 7 5.3	24.35	23	21 20 6.10	S. 19 8 16.0	73.42
THURSDAY 6.				SATURDAY 8.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	19 38 19.89	S. 23 4 39.2	25.53	0	21 22 10.55	S. 19 0 55.5	74.26
1	19 40 34.43	23 2 6.1	26.70	1	21 24 14.76	18 53 29.9	75.09
2	19 42 48.82	22 59 25.9	27.86	2	21 26 18.72	18 45 59.4	75.91
3	19 45 3.03	22 56 38.7	29.03	3	21 28 22.44	18 38 24.0	76.72
4	19 47 17.07	22 53 44.5	30.18	4	21 30 25.92	18 30 43.7	77.52
5	19 49 30.94	22 50 43.4	31.33	5	21 32 29.16	18 22 58.6	78.31
6	19 51 44.64	22 47 35.5	32.48	6	21 34 32.16	18 15 8.7	79.10
7	19 53 58.15	22 44 20.6	33.61	7	21 36 34.91	18 7 14.1	79.87
8	19 56 11.48	22 40 58.9	34.75	8	21 38 37.43	17 59 14.9	80.64
9	19 58 24.63	22 37 30.4	35.87	9	21 40 39.70	17 51 11.1	81.40
10	20 0 37.59	22 33 55.2	36.99	10	21 42 41.73	17 43 2.7	82.15
11	20 2 50.36	22 30 13.2	38.11	11	21 44 43.53	17 34 49.8	82.89
12	20 5 2.94	22 26 24.6	39.22	12	21 46 45.09	17 26 32.4	83.62
13	20 7 15.32	22 22 29.3	40.32	13	21 48 46.41	17 18 10.7	84.35
14	20 9 27.51	22 18 27.4	41.41	14	21 50 47.50	17 9 44.6	85.06
15	20 11 39.49	22 14 18.9	42.50	15	21 52 48.35	17 1 14.2	85.77
16	20 13 51.27	22 10 3.9	43.58	16	21 54 48.96	16 52 39.6	86.47
17	20 16 2.85	22 5 42.4	44.66	17	21 56 49.34	16 44 0.7	87.17
18	20 18 14.22	22 1 14.5	45.73	18	21 58 49.48	16 35 17.7	87.85
19	20 20 25.38	21 56 40.1	46.79	19	22 0 49.39	16 26 30.6	88.52
20	20 22 36.33	21 51 59.4	47.84	20	22 2 49.07	16 17 39.5	89.19
21	20 24 47.06	21 47 12.3	48.89	21	22 4 48.53	16 8 44.4	89.85
22	20 26 57.58	21 42 19.0	49.93	22	22 6 47.75	15 59 45.3	90.50
23	20 29 7.88	21 37 19.4	50.96	23	22 8 46.75	15 50 42.3	91.14
24	20 31 17.96	S. 21 32 13.7		24	22 10 45.52	S. 15 41 35.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.
SUNDAY 9.				TUESDAY 11.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	22 10 45.52	S. 15 41 35.5	91.77	0	23 41 57.26	S. 7 24 22.2
1	22 12 44.06	15 32 24.9	92.40	1	23 43 47.44	7 13 4.7
2	22 14 42.38	15 23 10.5	93.01	2	23 45 37.51	7 1 45.7
3	22 16 40.48	15 13 52.4	93.62	3	23 47 27.48	6 50 25.2
4	22 18 38.35	15 4 30.7	94.22	4	23 49 17.33	6 39 3.2
5	22 20 36.01	14 55 5.3	94.81	5	23 51 7.09	6 27 39.8
6	22 22 33.45	14 45 36.5	95.40	6	23 52 56.75	6 16 15.0
7	22 24 30.67	14 36 4.1	95.98	7	23 54 46.32	6 4 48.8
8	22 26 27.68	14 26 28.2	96.54	8	23 56 35.79	5 53 21.3
9	22 28 24.48	14 16 49.0	97.10	9	23 58 25.18	5 41 52.6
10	22 30 21.07	14 7 6.3	97.66	10	0 0 14.48	5 30 22.6
11	22 32 17.45	13 57 20.4	98.20	11	0 2 3.70	5 18 51.4
12	22 34 13.62	13 47 31.2	98.74	12	0 3 52.84	5 7 19.1
13	22 36 9.59	13 37 38.8	99.27	13	0 5 41.91	4 55 45.7
14	22 38 5.36	13 27 43.2	99.79	14	0 7 30.90	4 44 11.2
15	22 40 0.92	13 17 44.5	100.30	15	0 9 19.82	4 32 35.7
16	22 41 56.29	13 7 42.7	100.80	16	0 11 8.68	4 20 59.2
17	22 43 51.47	12 57 37.9	101.30	17	0 12 57.48	4 9 21.8
18	22 45 46.44	12 47 30.1	101.78	18	0 14 46.21	3 57 43.4
19	22 47 41.23	12 37 19.4	102.26	19	0 16 34.89	3 46 4.1
20	22 49 35.82	12 27 5.8	102.74	20	0 18 23.52	3 34 24.1
21	22 51 30.23	12 16 49.4	103.20	21	0 20 12.10	3 22 43.2
22	22 53 24.45	12 6 30.2	103.66	22	0 22 0.63	3 11 1.6
23	22 55 18.49	S. 11 56 8.2	104.11	23	0 23 49.12	S. 2 59 19.2
MONDAY 10.				WEDNESDAY 12.		
0	22 57 12.34	S. 11 45 43.6	104.55	0	0 25 37.57	S. 2 47 36.2
1	22 59 6.02	11 35 16.3	104.97	1	0 27 25.98	2 35 52.5
2	23 0 59.52	11 24 46.5	105.40	2	0 29 14.36	2 24 8.3
3	23 2 52.85	11 14 14.1	105.82	3	0 31 2.71	2 12 23.4
4	23 4 46.00	11 3 39.1	106.23	4	0 32 51.04	2 0 38.1
5	23 6 38.99	10 53 1.7	106.64	5	0 34 39.34	1 48 52.2
6	23 8 31.81	10 42 21.9	107.03	6	0 36 27.62	1 37 5.9
7	23 10 24.47	10 31 39.7	107.42	7	0 38 15.89	1 25 19.2
8	23 12 16.97	10 20 55.2	107.80	8	0 40 4.14	1 13 32.1
9	23 14 9.31	10 10 8.4	108.17	9	0 41 52.39	1 1 44.7
10	23 16 1.49	9 59 19.4	108.54	10	0 43 40.63	0 49 56.9
11	23 17 53.52	9 48 28.2	108.90	11	0 45 28.87	0 38 9.0
12	23 19 45.40	9 37 34.8	109.25	12	0 47 17.11	0 26 20.7
13	23 21 37.13	9 26 39.3	109.59	13	0 49 5.36	0 14 32.3
14	23 23 28.72	9 15 41.8	109.93	14	0 50 53.61	S. 0 2 43.8
15	23 25 20.17	9 4 42.2	110.26	15	0 52 41.88	N. 0 9 4.9
16	23 27 11.48	8 53 40.7	110.58	16	0 54 30.17	0 20 53.7
17	23 29 2.65	8 42 37.2	110.90	17	0 56 18.47	0 32 42.5
18	23 30 53.69	8 31 31.8	111.20	18	0 58 6.80	0 44 31.2
19	23 32 44.59	8 20 24.6	111.51	19	0 59 55.15	0 56 20.0
20	23 34 35.37	8 9 15.5	111.80	20	1 1 43.54	1 8 8.6
21	23 36 26.02	7 58 4.7	112.09	21	1 3 31.96	1 19 57.2
22	23 38 16.55	7 46 52.2	112.37	22	1 5 20.41	1 31 45.6
23	23 40 6.96	7 35 38.0	112.64	23	1 7 8.91	1 43 33.8
24	23 41 57.26	S. 7 24 22.2		24	1 8 57.45	N. 1 55 21.8

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
THURSDAY 13.				SATURDAY 15.		
m s	° ' "	"		h m s	° ' "	"
8 57.45	N. 1 55 21.8	117.95	0	2 37 52.13	N. 11 4 34.5	108.05
0 46.04	2 7 9.5	117.90	1	2 39 47.38	11 15 22.8	107.67
2 34.68	2 18 56.8	117.84	2	2 41 42.87	11 26 8.8	107.28
4 23.37	2 30 43.9	117.78	3	2 43 38.58	11 36 52.5	106.88
6 12.13	2 42 30.6	117.71	4	2 45 34.53	11 47 33.7	106.47
8 0.95	2 54 16.8	117.63	5	2 47 30.73	11 58 12.6	106.06
9 49.83	3 6 2.6	117.55	6	2 49 27.16	12 8 48.9	105.63
1 38.79	3 17 47.9	117.46	7	2 51 23.85	12 19 22.7	105.20
3 27.81	3 29 32.7	117.37	8	2 53 20.78	12 29 53.9	104.76
5 16.92	3 41 16.9	117.27	9	2 55 17.97	12 40 22.5	104.31
7 6.11	3 53 0.5	117.16	10	2 57 15.42	12 50 48.4	103.86
8 55.38	4 4 43.4	117.04	11	2 59 13.12	13 1 11.5	103.39
0 44.74	4 16 25.7	116.93	12	3 1 11.09	13 11 31.9	102.92
2 34.19	4 28 7.3	116.80	13	3 3 9.33	13 21 49.4	102.44
4 23.74	4 39 48.1	116.67	14	3 5 7.84	13 32 4.0	101.94
6 13.39	4 51 28.1	116.53	15	3 7 6.62	13 42 15.7	101.44
8 3.15	5 3 7.2	116.38	16	3 9 5.68	13 52 24.3	100.94
9 53.01	5 14 45.5	116.23	17	3 11 5.03	14 2 30.0	100.42
1 42.98	5 26 22.9	116.07	18	3 13 4.65	14 12 32.5	99.89
3 33.07	5 37 59.3	115.90	19	3 15 4.56	14 22 31.8	99.35
5 23.27	5 49 34.7	115.73	20	3 17 4.77	14 32 27.9	98.81
7 13.60	6 1 9.1	115.55	21	3 19 5.27	14 42 20.8	98.25
9 4.05	6 12 42.4	115.37	22	3 21 6.06	14 52 10.3	97.69
0 54.63	N. 6 24 14.6	115.17	23	3 23 7.16	N. 15 1 56.4	97.12
FRIDAY 14.				SUNDAY 16.		
m s	° ' "	"		h m s	° ' "	"
2 45.34	N. 6 35 45.6	114.97	0	3 25 8.56	N. 15 11 39.1	96.53
4 36.19	6 47 15.5	114.77	1	3 27 10.27	15 21 18.3	95.94
6 27.19	6 58 44.1	114.55	2	3 29 12.28	15 30 53.9	95.34
8 18.32	7 10 11.4	114.33	3	3 31 14.61	15 40 25.9	94.72
0 9.61	7 21 37.4	114.11	4	3 33 17.25	15 49 54.3	94.10
2 1.05	7 33 2.0	113.87	5	3 35 20.22	15 59 18.9	93.47
3 52.64	7 44 25.3	113.63	6	3 37 23.50	16 8 39.7	92.83
5 44.39	7 55 47.1	113.38	7	3 39 27.10	16 17 56.7	92.18
7 36.31	8 7 7.4	113.13	8	3 41 31.04	16 27 9.8	91.52
9 28.39	8 18 26.1	112.87	9	3 43 35.30	16 36 18.9	90.84
1 20.64	8 29 43.4	112.60	10	3 45 39.89	16 45 23.9	90.16
3 13.06	8 40 58.9	112.32	11	3 47 44.82	16 54 24.9	89.47
5 5.67	8 52 12.9	112.04	12	3 49 50.08	17 3 21.7	88.77
6 58.46	9 3 25.1	111.75	13	3 51 55.68	17 12 14.4	88.06
8 51.43	9 14 35.6	111.45	14	3 54 1.63	17 21 2.7	87.34
0 44.58	9 25 44.3	111.14	15	3 56 7.92	17 29 46.8	86.60
2 37.93	9 36 51.1	110.83	16	3 58 14.56	17 38 26.4	85.86
4 31.48	9 47 56.1	110.51	17	4 0 21.54	17 47 1.5	85.10
6 25.23	9 58 59.2	110.18	18	4 2 28.88	17 55 32.2	84.34
8 19.18	10 10 0.3	109.85	19	4 4 36.57	18 3 58.2	83.56
0 13.34	10 20 59.3	109.50	20	4 6 44.61	18 12 19.5	82.77
2 7.71	10 31 56.3	109.15	21	4 8 53.01	18 20 36.2	81.97
4 2.30	10 42 51.2	108.79	22	4 11 1.77	18 28 48.0	81.16
5 57.10	10 53 44.0	108.42	23	4 13 10.88	18 36 54.9	80.34
7 52.13	N. 11 4 34.5		24	4 15 20.36	N. 18 44 57.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. for
MONDAY 17.				WEDNESDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 15 20.36	N.18 44 57.0	79.50	0	6 6 9.81	N.23 11 9.9	25
1	4 17 30.20	18 52 54.0	78.66	1	6 8 36.99	23 13 44.9	24
2	4 19 40.40	19 0 45.9	77.80	2	6 11 4.49	23 16 11.6	23
3	4 21 50.98	19 8 32.7	76.93	3	6 13 32.28	23 18 29.8	21
4	4 24 1.92	19 16 14.3	76.05	4	6 16 0.38	23 20 39.5	20
5	4 26 13.22	19 23 50.7	75.16	5	6 18 28.78	23 22 40.7	18
6	4 28 24.90	19 31 21.7	74.26	6	6 20 57.47	23 24 33.3	17
7	4 30 36.95	19 38 47.2	73.35	7	6 23 26.45	23 26 17.2	15
8	4 32 49.37	19 46 7.3	72.43	8	6 25 55.71	23 27 52.3	14
9	4 35 2.17	19 53 21.9	71.49	9	6 28 25.25	23 29 18.8	12
10	4 37 15.33	20 0 30.8	70.54	10	6 30 55.06	23 30 36.4	11
11	4 39 28.88	20 7 34.1	69.58	11	6 33 25.13	23 31 45.1	9
12	4 41 42.79	20 14 31.5	68.61	12	6 35 55.47	23 32 44.9	8
13	4 43 57.09	20 21 23.2	67.63	13	6 38 26.07	23 33 35.7	6
14	4 46 11.76	20 28 9.0	66.63	14	6 40 56.93	23 34 17.4	5
15	4 48 26.81	20 34 48.7	65.62	15	6 43 28.02	23 34 50.1	3
16	4 50 42.24	20 41 22.5	64.61	16	6 45 59.36	23 35 13.7	2
17	4 52 58.04	20 47 50.1	63.58	17	6 48 30.93	23 35 28.1	0
18	4 55 14.22	20 54 11.6	62.53	18	6 51 2.73	23 35 33.3	0
19	4 57 30.78	21 0 26.8	61.48	19	6 53 34.75	23 35 29.2	2
20	4 59 47.71	21 6 35.7	60.41	20	6 56 6.99	23 35 15.9	3
21	5 2 5.02	21 12 38.1	59.34	21	6 58 39.43	23 34 53.2	5
22	5 4 22.71	21 18 34.2	58.25	22	7 1 12.08	23 34 21.2	6
23	5 6 40.77	N.21 24 23.7	57.15	23	7 3 44.93	N.23 33 39.8	8
TUESDAY 18.				THURSDAY 20.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	5 8 59.20	N.21 30 6.5	56.04	0	7 6 17.96	N.23 32 48.9	10
1	5 11 18.01	21 35 42.7	54.91	1	7 8 51.18	23 31 48.6	11
2	5 13 37.19	21 41 12.2	53.77	2	7 11 24.57	23 30 38.7	13
3	5 15 56.74	21 46 34.9	52.62	3	7 13 58.13	23 29 19.4	14
4	5 18 16.66	21 51 50.6	51.46	4	7 16 31.86	23 27 50.5	16
5	5 20 36.95	21 56 59.4	50.29	5	7 19 5.74	23 26 12.0	18
6	5 22 57.61	22 2 1.1	49.11	6	7 21 39.77	23 24 23.9	19
7	5 25 18.63	22 6 55.8	47.91	7	7 24 13.94	23 22 26.2	21
8	5 27 40.02	22 11 43.2	46.70	8	7 26 48.25	23 20 18.9	22
9	5 30 1.77	22 16 23.4	45.48	9	7 29 22.69	23 18 1.9	24
10	5 32 23.88	22 20 56.3	44.25	10	7 31 57.25	23 15 35.2	26
11	5 34 46.34	22 25 21.8	43.01	11	7 34 31.92	23 12 58.9	27
12	5 37 9.16	22 29 39.9	41.75	12	7 37 6.70	23 10 12.8	29
13	5 39 32.34	22 33 50.4	40.49	13	7 39 41.59	23 7 17.1	30
14	5 41 55.87	22 37 53.3	39.21	14	7 42 16.57	23 4 11.6	32
15	5 44 19.75	22 41 48.5	37.92	15	7 44 51.63	23 0 56.4	34
16	5 46 43.97	22 45 36.0	36.62	16	7 47 26.77	22 57 31.5	35
17	5 49 8.54	22 49 15.7	35.31	17	7 50 1.99	22 53 56.8	37
18	5 51 33.45	22 52 47.6	33.99	18	7 52 37.27	22 50 12.4	39
19	5 53 58.69	22 56 11.5	32.65	19	7 55 12.60	22 46 18.3	40
20	5 56 24.26	22 59 27.4	31.31	20	7 57 47.99	22 42 14.4	42
21	5 58 50.16	23 2 35.3	29.96	21	8 0 23.42	22 38 0.9	43
22	6 1 16.39	23 5 35.0	28.59	22	8 2 58.89	22 33 37.6	45
23	6 3 42.94	23 8 26.6	27.22	23	8 5 34.39	22 29 4.6	47
24	6 6 9.81	N.23 11 9.9		24	8 8 9.91	N.22 24 21.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.
FRIDAY 21.				SUNDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 8 9.91	N. 22 24 21.9	48.73	0	10 11 1.39	N. 15 40 38.9	116.88
1	8 10 45.45	22 19 29.5	50.34	1	10 13 31.06	15 28 57.6	117.98
2	8 13 20.99	22 14 27.5	51.95	2	10 16 0.52	15 17 9.7	119.07
3	8 15 56.54	22 9 15.8	53.55	3	10 18 29.76	15 5 15.3	120.14
4	8 18 32.08	22 3 54.5	55.15	4	10 20 58.79	14 53 14.5	121.20
5	8 21 7.61	21 58 23.6	56.75	5	10 23 27.60	14 41 7.3	122.23
6	8 23 43.12	21 52 43.1	58.34	6	10 25 56.20	14 28 53.9	123.25
7	8 26 18.60	21 46 53.1	59.93	7	10 28 24.58	14 16 34.4	124.26
8	8 28 54.05	21 40 53.5	61.51	8	10 30 52.74	14 4 8.8	125.24
9	8 31 29.46	21 34 44.5	63.08	9	10 33 20.68	13 51 37.4	126.21
10	8 34 4.83	21 28 26.0	64.65	10	10 35 48.40	13 39 0.1	127.16
11	8 36 40.15	21 21 58.1	66.22	11	10 38 15.90	13 26 17.1	128.09
12	8 39 15.40	21 15 20.7	67.78	12	10 40 43.17	13 13 28.6	129.02
13	8 41 50.59	21 8 34.1	69.33	13	10 43 10.23	13 0 34.6	129.90
14	8 44 25.72	21 1 38.1	70.87	14	10 45 37.06	12 47 35.2	130.78
15	8 47 0.76	20 54 32.8	72.41	15	10 48 3.68	12 34 30.5	131.63
16	8 49 35.72	20 47 18.4	73.94	16	10 50 30.07	12 21 20.7	132.47
17	8 52 10.60	20 39 54.8	75.46	17	10 52 56.24	12 8 5.9	133.29
18	8 54 45.38	20 32 22.0	76.97	18	10 55 22.19	11 54 46.1	134.10
19	8 57 20.06	20 24 40.2	78.47	19	10 57 47.93	11 41 21.5	134.88
20	8 59 54.64	20 16 49.4	79.96	20	11 0 13.44	11 27 52.3	135.65
21	9 2 29.11	20 8 49.6	81.45	21	11 2 38.73	11 14 18.4	136.39
22	9 5 3.46	20 0 41.0	82.92	22	11 5 3.81	11 0 40.0	137.12
23	9 7 37.69	N. 19 52 23.5	84.38	23	11 7 28.66	N. 10 46 57.3	137.83
SATURDAY 22.				MONDAY 24.			
0	9 10 11.79	N. 19 43 57.2	85.83	0	11 9 53.30	N. 10 33 10.3	138.52
1	9 12 45.76	19 35 22.1	87.28	1	11 12 17.72	10 19 19.2	139.19
2	9 15 19.59	19 26 38.5	88.71	2	11 14 41.93	10 5 24.1	139.84
3	9 17 53.29	19 17 46.2	90.13	3	11 17 5.92	9 51 25.0	140.47
4	9 20 26.84	19 8 45.5	91.54	4	11 19 29.70	9 37 22.2	141.09
5	9 23 0.23	18 59 36.3	92.93	5	11 21 53.28	9 23 15.7	141.68
6	9 25 33.48	18 50 18.7	94.32	6	11 24 16.64	9 9 5.6	142.25
7	9 28 6.57	18 40 52.8	95.69	7	11 26 39.80	8 54 52.1	142.81
8	9 30 39.49	18 31 18.6	97.05	8	11 29 2.75	8 40 35.2	143.34
9	9 33 12.25	18 21 36.3	98.40	9	11 31 25.49	8 26 15.2	143.86
10	9 35 44.84	18 11 45.9	99.73	10	11 33 48.04	8 11 52.0	144.36
11	9 38 17.26	18 1 47.5	101.05	11	11 36 10.38	7 57 25.8	144.84
12	9 40 49.49	17 51 41.2	102.36	12	11 38 32.53	7 42 56.8	145.30
13	9 43 21.54	17 41 27.1	103.66	13	11 40 54.48	7 28 25.0	145.74
14	9 45 53.42	17 31 5.1	104.93	14	11 43 16.24	7 13 50.6	146.16
15	9 48 25.10	17 20 35.5	106.20	15	11 45 37.80	6 59 13.7	146.56
16	9 50 56.59	17 9 58.3	107.45	16	11 47 59.18	6 44 34.3	146.94
17	9 53 27.90	16 59 13.7	108.68	17	11 50 20.37	6 29 52.7	147.30
18	9 55 59.00	16 48 21.6	109.90	18	11 52 41.38	6 15 8.9	147.64
19	9 58 29.91	16 37 22.2	111.10	19	11 55 2.20	6 0 23.0	147.97
20	10 1 0.62	16 26 15.6	112.29	20	11 57 22.84	5 45 35.2	148.27
21	10 3 31.12	16 15 1.9	113.46	21	11 59 43.31	5 30 45.6	148.56
22	10 6 1.42	16 3 41.1	114.62	22	12 2 3.60	5 15 54.2	148.83
23	10 8 31.51	15 52 13.4	115.75	23	12 4 23.72	5 1 1.3	149.07
24	10 11 1.39	N. 15 40 38.9		24	12 6 43.67	N. 4 46 6.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10'.	Hours.	Right Ascension.	Declination.	Diff. for
TUESDAY 25.				THURSDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	
0	12 6 43.67	N. 4 46 6.8	149.30	0	13 56 22.66	S. 7 3 40.1	139
1	12 9 3.45	4 31 11.0	149.51	1	13 58 38.13	7 17 39.5	139
2	12 11 23.08	4 16 14.0	149.70	2	14 0 53.58	7 31 35.5	138
3	12 13 42.54	4 1 15.8	149.87	3	14 3 9.03	7 45 28.0	138
4	12 16 1.84	3 46 16.6	150.03	4	14 5 24.46	7 59 16.8	137
5	12 18 20.99	3 31 16.4	150.16	5	14 7 39.89	8 13 1.9	136
6	12 20 39.98	3 16 15.4	150.28	6	14 9 55.32	8 26 43.3	136
7	12 22 58.83	3 1 13.7	150.38	7	14 12 10.74	8 40 20.8	135
8	12 25 17.53	2 46 11.5	150.46	8	14 14 26.17	8 53 54.4	134
9	12 27 36.09	2 31 8.7	150.53	9	14 16 41.61	9 7 24.0	134
10	12 29 54.51	2 16 5.5	150.57	10	14 18 57.05	9 20 49.5	133
11	12 32 12.80	2 1 2.1	150.60	11	14 21 12.50	9 34 10.8	133
12	12 34 30.95	1 45 58.5	150.61	12	14 23 27.97	9 47 27.9	133
13	12 36 48.97	1 30 54.9	150.60	13	14 25 43.45	10 0 40.7	132
14	12 39 6.86	1 15 51.3	150.57	14	14 27 58.95	10 13 49.2	132
15	12 41 24.64	1 0 47.8	150.53	15	14 30 14.48	10 26 53.1	129
16	12 43 42.29	0 45 44.6	150.47	16	14 32 30.02	10 39 52.6	129
17	12 45 59.82	0 30 41.8	150.39	17	14 34 45.59	10 52 47.5	129
18	12 48 17.23	0 15 39.5	150.30	18	14 37 1.19	11 5 37.7	129
19	12 50 34.54	N. 0 0 37.7	150.18	19	14 39 16.81	11 18 23.2	129
20	12 52 51.74	S. 0 14 23.4	150.05	20	14 41 32.46	11 31 3.9	129
21	12 55 8.83	0 29 23.7	149.91	21	14 43 48.15	11 43 39.7	129
22	12 57 25.83	0 44 23.2	149.74	22	14 46 3.87	11 56 10.5	129
23	12 59 42.72	S. 0 59 21.6	149.56	23	14 48 19.63	S. 12 8 36.4	129
WEDNESDAY 26.				FRIDAY 28.			
0	13 1 59.52	S. 1 14 19.0	149.36	0	14 50 35.42	S. 12 20 57.2	129
1	13 4 16.23	1 29 15.2	149.15	1	14 52 51.25	12 33 12.9	129
2	13 6 32.84	1 44 10.1	148.92	2	14 55 7.13	12 45 23.3	129
3	13 8 49.38	1 59 3.6	148.67	3	14 57 23.04	12 57 28.5	119
4	13 11 5.83	2 13 55.6	148.41	4	14 59 39.00	13 9 28.4	119
5	13 13 22.20	2 28 46.0	148.13	5	15 1 55.01	13 21 22.9	119
6	13 15 38.49	2 43 34.8	147.83	6	15 4 11.06	13 33 11.9	119
7	13 17 54.72	2 58 21.8	147.52	7	15 6 27.17	13 44 55.5	119
8	13 20 10.87	3 13 7.0	147.20	8	15 8 43.32	13 56 33.5	119
9	13 22 26.97	3 27 50.1	146.85	9	15 10 59.52	14 8 5.8	119
10	13 24 42.99	3 42 31.3	146.50	10	15 13 15.78	14 19 32.5	119
11	13 26 58.96	3 57 10.2	146.12	11	15 15 32.09	14 30 53.5	119
12	13 29 14.88	4 11 47.0	145.73	12	15 17 48.46	14 42 8.6	119
13	13 31 30.75	4 26 21.4	145.33	13	15 20 4.88	14 53 17.9	119
14	13 33 46.56	4 40 53.3	144.91	14	15 22 21.37	15 4 21.3	109
15	13 36 2.33	4 55 22.8	144.48	15	15 24 37.90	15 15 18.8	109
16	13 38 18.06	5 9 49.6	144.03	16	15 26 54.50	15 26 10.2	109
17	13 40 33.74	5 24 13.8	143.56	17	15 29 11.16	15 36 55.6	109
18	13 42 49.39	5 38 35.2	143.08	18	15 31 27.87	15 47 34.9	109
19	13 45 5.00	5 52 53.7	142.59	19	15 33 44.65	15 58 8.0	109
20	13 47 20.59	6 7 9.2	142.08	20	15 36 1.49	16 8 34.9	109
21	13 49 36.14	6 21 21.7	141.56	21	15 38 18.39	16 18 55.6	109
22	13 51 51.67	6 35 31.1	141.03	22	15 40 35.36	16 29 9.9	109
23	13 54 7.18	6 49 37.2	140.56	23	15 42 52.38	16 39 17.9	109
24	13 56 22.66	S. 7 3 40.1			45 9.47	S. 16 49 19.5	

MEAN TIME.

PHASES OF THE MOON.

	d	h	m
● New Moon.....	8	5	1.1
☾ First Quarter.....	16	9	41.1
○ Full Moon.....	23	8	59.8

	d	h
☾ Apogee.....	11	11
☾ Perigee.....	24	1

MEAN TIME.											
LUNAR DISTANCES.											
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.	
			° ' "		° ' "		° ' "		° ' "		
1	Regulus	W.	80 22 17	2477	82 4 2	2490	83 45 29	2502	85 26 40	2514	
	Saturn	W.	37 14 4	2474	38 55 54	2485	40 37 29	2497	42 18 47	2507	
	Spica ♀	W.	27 0 47	2621	28 39 13	2619	30 17 42	2619	31 56 11	2621	
	Mars	E.	57 47 31	2717	56 11 13	2729	54 35 12	2742	52 59 28	2755	
	SUN	E.	84 19 42	2811	82 45 29	2825	81 11 34	2838	79 37 55	2852	
2	Regulus	W.	93 48 23	2573	95 27 55	2585	97 7 11	2596	98 46 11	2607	
	Saturn	W.	50 41 22	2564	52 21 6	2575	54 0 35	2585	55 39 50	2597	
	Spica ♀	W.	40 7 44	2642	41 45 42	2648	43 23 32	2655	45 1 12	2662	
	Mars	E.	45 5 1	2818	43 30 57	2830	41 57 8	2842	40 23 35	2854	
	SUN	E.	71 53 58	2916	70 22 0	2929	68 50 18	2942	67 18 52	2954	
3	Saturn	W.	63 52 22	2649	65 30 11	2660	67 7 45	2669	68 45 6	2679	
	Spica ♀	W.	53 6 58	2703	54 43 34	2711	56 20 0	2720	57 56 14	2728	
	Mars	E.	32 39 36	2912	31 7 32	2923	29 35 42	2934	28 4 6	2944	
	SUN	E.	59 45 31	3014	58 15 36	3026	56 45 55	3037	55 16 28	3048	
4	Saturn	W.	76 48 39	2726	78 24 44	2735	80 0 38	2744	81 36 19	2753	
	Spica ♀	W.	65 54 39	2769	67 29 47	2778	69 4 44	2785	70 39 31	2794	
	Antares	W.	20 37 2	2985	22 7 33	2962	23 38 33	2945	25 9 55	2931	
	Mars	E.	20 29 23	2995	18 59 4	3006	- - -	- - -	- - -	- - -	
	SUN	E.	47 52 40	3104	46 24 35	3115	44 56 43	3125	43 29 4	3135	
5	Saturn	W.	89 31 57	2795	91 6 32	2803	92 40 56	2811	94 15 10	2819	
	Spica ♀	W.	78 30 44	2835	80 4 27	2842	81 38 0	2849	83 11 24	2858	
	Antares	W.	32 49 37	2907	34 21 47	2907	35 53 57	2908	37 26 6	2909	
	SUN	E.	36 14 0	3189	34 47 38	3200	33 21 29	3210	31 55 32	3222	
6	Saturn	W.	102 3 48	2857	103 37 2	2864	105 10 7	2871	106 43 3	2878	
	Antares	W.	45 6 5	2926	46 37 51	2930	48 9 32	2934	49 41 8	2939	
9	Jupiter	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
10	SUN	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
	Jupiter	E.	48 54 0	3123	47 26 18	3127	45 58 41	3131	44 31 9	3136	
	α Arietis	E.	56 2 53	3258	54 37 52	3270	53 13 5	3282	51 48 32	3294	
	Aldebaran	E.	86 1 42	3057	84 32 40	3061	83 3 42	3065	81 34 49	3069	
11	SUN	W.	30 56 6	3495	32 16 36	3495	33 37 6	3495	34 57 36	3495	
	Jupiter	E.	37 14 48	3156	35 47 46	3160	34 20 49	3163	32 53 56	3167	
	α Arietis	E.	44 49 42	3369	43 26 50	3387	42 4 19	3408	40 42 11	3429	
	Aldebaran	E.	74 11 22	3082	72 42 50	3084	71 14 21	3086	69 45 54	3087	
	Pollux	E.	118 20 53	3097	116 52 40	3100	115 24 30	3101	113 56 21	3101	
12	SUN	W.	41 40 12	3491	43 0 46	3490	44 21 21	3489	45 41 58	3487	
	Jupiter	E.	25 40 43	3188	24 14 20	3194	22 48 3	3200	21 21 54	3207	
	Aldebaran	E.	62 24 0	3092	60 55 40	3091	59 27 19	3090	57 58 57	3090	
	Pollux	E.	106 35 46	3102	105 7 39	3101	103 39 31	3100	102 11 22	3099	
13	SUN	W.	52 25 42	3472	53 46 37	3468	55 7 37	3464	56 28 41	3460	
	Aldebaran	E.	50 36 49	3082	49 8 17	3078	47 39 41	3075	46 11 1	3073	
	Pollux	E.	94 50 6	3088	93 21 42	3085	91 53 14	3082	90 24 42	3077	
14	SUN	W.	63 15 32	3430	64 37 15	3422	65 59 7	3415	67 21 7	3406	
	Aldebaran	E.	38 46 33	3051	37 17 23	3045	35 48 6	3039	34 18 42	3034	
	Pollux	E.	83 0 35	3052	81 31 26	3045	80 2 9	3039	78 32 44	3031	

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
1	Regulus W.	87 7 34	2526	88 48 11	2538	90 28 31	2550	92 8 35	2561
	Saturn W.	43 59 50	2520	45 40 36	2530	47 21 7	2542	49 1 22	2553
	Spica π g W.	33 34 37	2621	35 13 3	2626	36 51 23	2630	38 29 37	2635
	Mars E.	51 24 1	2769	49 48 52	2780	48 13 58	2794	46 39 22	2805
	SUN E.	78 4 34	2865	76 31 30	2878	74 58 43	2891	73 26 12	2904
2	Regulus W.	100 24 56	2618	102 3 26	2630	103 41 40	2641	105 19 40	2651
	Saturn W.	57 18 49	2607	58 57 34	2618	60 36 4	2629	62 14 20	2639
	Spica π g W.	46 38 43	2671	48 16 2	2678	49 53 12	2687	51 30 10	2694
	Mars E.	38 50 17	2866	37 17 15	2877	35 44 27	2889	34 11 54	2901
	SUN E.	65 47 41	2966	64 16 46	2978	62 46 6	2990	61 15 41	3002
3	Saturn W.	70 22 14	2689	71 59 9	2698	73 35 52	2708	75 12 21	2717
	Spica π g W.	59 32 17	2736	61 8 9	2744	62 43 50	2753	64 19 20	2761
	Mars E.	26 32 43	2954	25 1 33	2965	23 30 37	2975	21 59 53	2986
	SUN E.	53 47 15	3061	52 18 16	3071	50 49 31	3082	49 20 59	3092
4	Saturn W.	83 11 49	2761	84 47 8	2770	86 22 15	2779	87 57 11	2786
	Spica π g W.	72 14 6	2802	73 48 31	2810	75 22 46	2818	76 56 50	2826
	Antares W.	26 41 34	2921	28 13 26	2915	29 45 26	2912	31 17 30	2909
	Mars E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	42 1 37	3147	40 34 24	3157	39 7 23	3168	37 40 35	3178
5	Saturn W.	95 49 13	2826	97 23 7	2835	98 56 50	2842	100 30 24	2849
	Spica π g W.	84 44 37	2865	86 17 41	2873	87 50 34	2880	89 23 18	2887
	Antares W.	38 58 13	2912	40 30 17	2915	42 2 17	2918	43 34 13	2921
	SUN E.	30 29 49	3233	29 4 19	3246	27 39 4	3257	26 14 2	3270
6	Saturn W.	108 15 50	2886	109 48 27	2893	111 20 55	2899	112 53 15	2906
	Antares W.	51 12 37	2943	52 44 1	2949	54 15 18	2954	55 46 29	2958
9	Jupiter E.	54 45 49	3102	53 17 42	3108	51 49 42	3113	50 21 48	3118
10	SUN W.	25 34 10	3497	26 54 38	3496	28 15 7	3495	29 35 37	3496
	Jupiter E.	43 3 43	3140	41 36 22	3144	40 9 6	3148	38 41 55	3152
	α Arietis E.	50 24 13	3307	49 0 10	3321	47 36 23	3336	46 12 53	3352
	Aldebaran E.	80 6 1	3071	78 37 16	3074	77 8 34	3078	75 39 57	3079
11	SUN W.	36 18 6	3494	37 38 37	3494	38 59 8	3494	40 19 39	3492
	Jupiter E.	31 27 8	3172	30 0 25	3175	28 33 46	3179	27 7 12	3183
	α Arietis E.	39 20 27	3454	37 59 11	3480	36 38 24	3508	35 18 9	3539
	Aldebaran E.	68 17 28	3089	66 49 5	3089	65 20 42	3091	63 52 21	3091
	Pollux E.	112 28 13	3102	111 0 6	3102	109 31 59	3102	108 3 52	3103
12	SUN W.	47 2 37	3484	48 23 19	3482	49 44 3	3479	51 4 51	3476
	Jupiter E.	19 55 53	3216	18 30 3	3228	- - -	- - -	- - -	- - -
	Aldebaran E.	56 30 35	3089	55 2 12	3087	53 33 46	3086	52 5 19	3083
	Pollux E.	100 43 11	3098	99 14 59	3096	97 46 44	3094	96 18 27	3091
13	SUN W.	57 49 50	3454	59 11 6	3448	60 32 28	3443	61 53 56	3436
	Aldebaran E.	44 42 18	3068	43 13 29	3064	41 44 36	3060	40 15 37	3056
	Pollux E.	88 56 4	3073	87 27 21	3068	85 58 32	3063	84 29 37	3057
14	SUN W.	68 43 17	3398	70 5 36	3389	71 28 5	3379	72 50 46	3369
	Aldebaran E.	32 49 11	3028	31 19 33	3022	29 49 47	3016	28 19 54	3010
	Pollux E.	77 3 9	3024	75 33 26	3016	74 3 33	3007	72 33 29	2998

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
15	SUN W.	74 13 38	3359	75 36 42	3347	76 59 59	3337	78 23 28	3324
	Jupiter W.	- - -	-	- - -	-	- - -	-	- - -	-
	Aldebaran E.	26 49 53	3004	25 19 45	2998	23 49 30	2991	22 19 6	2986
	Pollux E.	71 3 14	2989	69 32 48	2980	68 2 10	2970	66 31 20	2960
	Regulus E.	106 56 27	2979	105 25 48	2969	103 54 56	2958	102 23 51	2947
16	SUN W.	85 24 33	3259	86 49 33	3244	88 14 50	3230	89 40 24	3214
	Jupiter W.	22 5 38	2992	23 36 1	2973	25 6 48	2954	26 37 58	2935
	Pollux E.	58 53 44	2902	57 21 28	2891	55 48 57	2877	54 16 9	2864
	Regulus E.	94 44 47	2887	93 12 11	2873	91 39 18	2859	90 6 7	2845
17	SUN W.	96 53 1	3132	98 20 32	3115	99 48 24	3096	101 16 39	3078
	Jupiter W.	34 19 46	2843	35 53 18	2825	37 27 13	2806	39 1 33	2789
	α Arietis W.	32 19 44	3263	33 44 39	3206	35 10 41	3154	36 37 45	3106
	Pollux E.	46 27 50	2795	44 53 16	2782	43 18 24	2766	41 43 12	2753
	Regulus E.	82 15 29	2770	80 40 21	2753	79 4 52	2737	77 29 1	2720
	Saturn E.	- - -	-	- - -	-	121 38 22	2717	120 2 5	2700
18	SUN W.	108 43 32	2983	110 14 6	2963	111 45 5	2944	113 16 28	2924
	Jupiter W.	46 59 16	2694	48 36 4	2674	50 13 19	2655	51 50 59	2635
	α Arietis W.	44 6 32	2907	45 38 42	2874	47 11 34	2841	48 45 9	2809
	Pollux E.	33 42 34	2684	32 5 33	2671	30 28 14	2659	28 50 39	2648
	Regulus E.	69 24 2	2632	67 45 51	2614	66 7 15	2596	64 28 14	2577
	Saturn E.	111 54 47	2610	110 16 6	2592	108 37 0	2573	106 57 28	2555
19	Jupiter W.	60 6 2	2537	61 46 24	2517	63 27 14	2497	65 8 31	2478
	α Arietis W.	56 42 55	2666	58 20 20	2641	59 58 20	2615	61 36 55	2589
	Aldebaran W.	24 28 20	2507	26 9 24	2484	27 51 0	2461	29 33 8	2439
	Regulus E.	56 6 45	2484	54 25 9	2465	52 43 7	2447	51 0 39	2428
	Saturn E.	98 33 16	2459	96 51 5	2440	95 8 27	2420	93 25 21	2401
	Spica π E.	110 5 8	2507	108 24 4	2487	106 42 32	2467	105 0 32	2447
20	Jupiter W.	73 41 49	2381	75 25 51	2362	77 10 20	2344	78 55 16	2326
	α Arietis W.	69 58 14	2473	71 40 5	2451	73 22 27	2430	75 5 19	2410
	Aldebaran W.	38 11 27	2335	39 56 35	2315	41 42 12	2296	43 28 17	2277
	Regulus E.	42 21 44	2338	40 36 40	2321	38 51 11	2305	37 5 19	2289
	Saturn E.	84 43 1	2306	82 57 10	2288	81 10 53	2270	79 24 9	2252
	Spica π E.	96 23 35	2351	94 38 49	2331	92 53 35	2314	91 7 56	2295
21	Jupiter W.	87 46 26	2239	89 33 55	2223	91 21 48	2208	93 10 4	2193
	α Arietis W.	83 46 40	2317	85 32 15	2300	87 18 15	2285	89 4 37	2269
	Aldebaran W.	52 25 30	2188	54 14 15	2173	56 3 23	2157	57 52 56	2141
	Regulus E.	28 10 21	2220	26 22 23	2210	24 34 10	2202	22 45 45	2196
	Saturn E.	70 24 0	2167	68 34 43	2151	66 45 2	2136	64 54 58	2122
	Spica π E.	82 13 9	2211	80 24 58	2195	78 36 23	2180	76 47 26	2166
22	Jupiter W.	102 16 47	2126	104 7 6	2115	105 57 42	2105	107 48 34	2095
	α Arietis W.	98 1 40	2206	99 49 58	2196	101 38 31	2188	103 27 17	2179
	Aldebaran W.	67 6 11	2074	68 57 51	2063	70 49 48	2051	72 42 3	2041
	Pollux W.	23 18 47	2173	25 7 56	2149	26 57 41	2128	28 47 58	2109
	Saturn E.	55 39 17	2056	53 47 10	2045	51 54 46	2035	50 2 6	2025
	Spica π E.	67 37 32	2104	65 46 39	2093	63 55 29	2084	62 4 5	2075

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
			° ' "		° ' "		° ' "		° ' "	
15	SUN	W.	79 47 12	3313	81 11 9	3300	82 35 21	3286	83 59 49	3272
	Jupiter	W.	- - -	- - -	- - -	- - -	19 6 13	3036	20 35 41	3013
	Aldebaran	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux	E.	65 0 17	2949	63 29 0	2938	61 57 29	2927	60 25 44	2915
	Regulus	E.	100 52 32	2935	99 20 58	2924	97 49 10	2913	96 17 7	2899
16	SUN	W.	91 6 17	3198	92 32 29	3183	93 58 59	3165	95 25 50	3148
	Jupiter	W.	28 9 33	2916	29 41 31	2898	31 13 53	2880	32 46 38	2862
	Pollux	E.	52 43 4	2851	51 9 42	2838	49 36 3	2823	48 2 5	2810
	Regulus	E.	88 32 38	2831	86 58 51	2816	85 24 44	2801	83 50 17	2785
17	SUN	W.	102 45 15	3060	104 14 14	3040	105 43 37	3022	107 13 23	3003
	Jupiter	W.	40 36 16	2769	42 11 24	2751	43 46 56	2732	45 22 53	2712
	α Arietis	W.	38 5 47	3062	39 34 43	3020	41 4 31	2981	42 35 8	2943
	Pollux	E.	40 7 42	2738	38 31 53	2724	36 55 45	2711	35 19 19	2696
	Regulus	E.	75 52 48	2703	74 16 12	2685	72 39 12	2668	71 1 49	2650
	Saturn	E.	118 25 25	2682	116 48 21	2665	115 10 54	2646	113 33 2	2629
18	SUN	W.	114 48 17	2904	116 20 31	2884	117 53 11	2863	119 26 17	2843
	Jupiter	W.	53 29 6	2615	55 7 40	2596	56 46 40	2577	58 26 7	2556
	α Arietis	W.	50 19 25	2779	51 54 20	2750	53 29 54	2721	55 6 6	2693
	Pollux	E.	27 12 49	2640	25 34 48	2632	23 56 37	2629	22 18 21	2627
	Regulus	E.	62 48 48	2559	61 8 56	2540	59 28 39	2521	57 47 55	2502
	Saturn	E.	105 17 31	2535	103 37 7	2517	101 56 17	2497	100 15 0	2478
19	Jupiter	W.	66 50 15	2458	68 32 27	2438	70 15 7	2419	71 58 14	2400
	α Arietis	W.	63 16 5	2565	64 55 48	2541	66 36 4	2517	68 16 53	2495
	Aldebaran	W.	31 15 47	2417	32 58 57	2396	34 42 37	2375	36 26 47	2355
	Regulus	E.	49 17 44	2410	47 34 23	2391	45 50 35	2373	44 6 22	2356
	Saturn	E.	91 41 48	2382	89 57 48	2362	88 13 19	2344	86 28 24	2325
	Spica ♀	E.	103 18 4	2428	101 35 9	2408	99 51 45	2388	98 7 53	2370
20	Jupiter	W.	80 40 38	2307	82 26 27	2290	84 12 41	2272	85 59 21	2256
	α Arietis	W.	76 48 40	2390	78 32 29	2371	80 16 46	2352	82 1 30	2334
	Aldebaran	W.	45 14 50	2258	47 1 51	2241	48 49 18	2223	50 37 11	2206
	Regulus	E.	35 19 3	2273	33 32 24	2258	31 45 23	2245	29 58 2	2231
	Saturn	E.	77 36 59	2235	75 49 23	2217	74 1 20	2200	72 12 53	2183
	Spica ♀	E.	89 21 49	2278	87 35 17	2260	85 48 19	2243	84 0 56	2227
21	Jupiter	W.	94 58 42	2179	96 47 42	2164	98 37 4	2151	100 26 46	2138
	α Arietis	W.	90 51 22	2255	92 38 28	2241	94 25 54	2229	96 13 38	2217
	Aldebaran	W.	59 42 52	2127	61 33 10	2113	63 23 50	2099	65 14 51	2087
	Regulus	E.	20 57 11	2192	19 8 32	2194	17 19 56	2202	15 31 31	2219
	Saturn	E.	63 4 32	2107	61 13 43	2094	59 22 34	2081	57 31 5	2068
	Spica ♀	E.	74 58 7	2153	73 8 28	2139	71 18 28	2126	69 28 9	2115
22	Jupiter	W.	109 39 41	2085	111 31 3	2076	113 22 39	2069	115 14 26	2063
	α Arietis	W.	105 16 16	2173	107 5 24	2167	108 54 41	2162	110 44 6	2158
	Aldebaran	W.	74 34 33	2032	76 27 18	2023	78 20 16	2015	80 13 27	2008
	Pollux	W.	30 38 43	2090	32 29 57	2075	34 21 35	2062	36 13 33	2050
	Saturn	E.	48 9 10	2016	46 16 0	2008	44 22 38	2000	42 29 4	1993
	Spica ♀	E.	60 12 27	2067	58 20 37	2061	56 28 37	2054	54 36 27	2049

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
23	Jupiter W.	117 6 23	2056	118 58 30	2050	120 50 46	2044	- - -	-
	Aldebaran W.	82 6 49	2001	84 0 22	1995	85 54 4	1991	87 47 53	1987
	Pollux W.	38 5 49	2039	39 58 22	2030	41 51 9	2023	43 44 8	2019
	Saturn E.	40 35 19	1988	38 41 25	1983	36 47 24	1979	34 53 16	1974
	Spica π E.	52 44 9	2045	50 51 45	2043	48 59 17	2041	47 6 46	2040
	Antares E.	98 36 21	2025	96 43 26	2019	94 50 22	2015	92 57 11	2010
24	Aldebaran W.	97 18 14	1978	99 12 23	1978	101 6 32	1980	103 0 38	1982
	Pollux W.	53 11 10	1998	55 4 47	1997	56 58 26	1998	58 52 4	1999
	Regulus W.	17 21 50	2060	19 13 51	2046	21 6 14	2035	22 58 54	2031
	Saturn E.	25 21 59	1977	23 27 48	1981	21 33 44	1988	19 39 51	1994
	Spica π E.	37 44 41	2059	35 52 39	2068	34 0 50	2079	32 9 19	2094
	Antares E.	83 29 58	2002	81 36 27	2003	79 42 57	2005	77 49 30	2007
25	Pollux W.	68 19 19	2018	70 12 25	2024	72 5 22	2031	73 58 8	2039
	Regulus W.	32 23 38	2026	34 16 31	2030	36 9 18	2035	38 1 57	2042
	Antares E.	68 23 44	2034	66 31 2	2041	64 38 32	2050	62 46 15	2059
	Mars E.	- - -	-	- - -	-	120 32 57	2239	118 45 28	2248
26	Pollux W.	83 18 37	2088	85 9 55	2099	87 0 56	2111	88 51 39	2123
	Regulus W.	47 22 20	2085	49 13 42	2096	51 4 48	2107	52 55 36	2120
	Saturn W.	- - -	-	- - -	-	- - -	-	- - -	-
	Antares E.	53 28 52	2118	51 38 20	2132	49 48 10	2147	47 58 23	2163
	α Aquilæ E.	100 14 14	2780	98 39 20	2784	97 4 31	2791	95 29 51	2800
	Mars E.	109 51 32	2300	108 5 33	2313	106 19 52	2326	104 34 30	2339
27	Pollux W.	98 0 10	2194	99 48 47	2208	101 37 2	2224	103 24 53	2241
	Regulus W.	62 4 47	2187	63 53 34	2201	65 42 0	2217	67 30 3	2231
	Saturn W.	20 4 39	2187	21 53 26	2198	23 41 57	2209	25 30 11	2223
	Antares E.	38 55 51	2256	37 8 47	2279	35 22 16	2302	33 36 20	2326
	α Aquilæ E.	87 40 0	2866	86 6 58	2884	84 34 19	2905	83 2 6	2925
	Mars E.	95 52 42	2412	94 9 25	2429	92 26 31	2445	90 44 0	2462
	Sun E.	- - -	-	- - -	-	- - -	-	- - -	-
28	Regulus W.	76 24 30	2312	78 10 12	2328	79 55 30	2346	81 40 23	2364
	Saturn W.	34 26 13	2296	36 12 19	2311	37 58 3	2327	39 43 23	2343
	Spica π W.	23 9 29	2500	24 50 42	2490	26 32 10	2487	28 13 41	2489
	α Aquilæ E.	75 28 12	3052	73 59 4	3083	72 30 34	3115	71 2 42	3148
	Mars E.	82 17 20	2547	80 37 12	2565	78 57 29	2583	77 18 11	2601
	Sun E.	115 28 2	2641	113 50 2	2658	112 12 25	2676	110 35 13	2693

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
23	Jupiter W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Aldebaran W.	89 41 50	1983	91 35 51	1981	93 29 56	1979	95 24 4	1977
	Pollux W.	45 37 18	2010	47 30 37	2005	49 24 3	2002	51 17 34	1999
	Saturn E.	32 59 4	1974	31 4 48	1973	29 10 31	1973	27 16 14	1974
	Spica π E.	45 14 14	2041	43 21 43	2043	41 29 16	2046	39 36 54	2052
	Antares E.	91 3 52	2007	89 10 28	2005	87 17 1	2002	85 23 30	2001
24	Aldebaran W.	104 54 41	1986	106 48 37	1989	108 42 28	1994	110 36 12	1998
	Pollux W.	60 45 40	2001	62 39 13	2003	64 32 42	2008	66 26 4	2012
	Regulus W.	24 51 45	2024	26 44 41	2022	28 37 41	2022	30 30 41	2024
	Saturn E.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Spica π E.	30 18 10	2111	28 27 28	2132	26 37 17	2158	24 47 46	2190
	Antares E.	75 56 7	2011	74 2 50	2015	72 9 39	2021	70 16 37	2026
25	Pollux W.	75 50 42	2047	77 43 3	2057	79 35 9	2066	81 27 1	2076
	Regulus W.	39 54 26	2049	41 46 44	2057	43 38 50	2066	45 30 42	2075
	Antares E.	60 54 13	2069	59 2 26	2080	57 10 56	2092	55 19 45	2104
	Mars E.	116 58 12	2257	115 11 9	2267	113 24 21	2277	111 37 48	2289
26	Pollux W.	90 42 3	2137	92 32 6	2150	94 21 49	2165	96 11 10	2179
	Regulus W.	54 46 5	2132	56 36 16	2145	58 26 7	2159	60 15 37	2172
	Saturn W.	- - -	- -	- - -	- -	16 26 33	2175	18 15 39	2179
	Antares E.	46 8 59	2180	44 20 1	2197	42 31 29	2216	40 43 25	2236
	α Aquilæ E.	93 55 23	2809	92 21 7	2821	90 47 7	2835	89 13 24	2849
	Mars E.	102 49 27	2353	101 4 45	2366	99 20 22	2382	97 36 21	2397
27	Pollux W.	105 12 20	2256	106 59 25	2272	108 46 5	2290	110 32 19	2310
	Regulus W.	69 17 43	2247	71 5 0	2263	72 51 54	2279	74 38 24	2296
	Saturn W.	27 18 6	2236	29 5 40	2250	30 52 53	2265	32 39 44	2280
	Antares E.	31 50 59	2355	30 6 20	2384	28 22 22	2415	26 39 8	2450
	α Aquilæ E.	81 30 19	2947	79 59 0	2972	78 28 12	2997	76 57 55	3024
	Mars E.	89 1 53	2478	87 20 9	2495	85 38 48	2512	83 57 52	2530
	SUN E.	122 3 58	2570	120 24 22	2588	118 45 10	2607	117 6 24	2624
28	Regulus W.	83 24 53	2379	85 8 58	2396	86 52 39	2413	88 35 55	2429
	Saturn W.	41 28 20	2359	43 12 54	2375	44 57 4	2391	46 40 51	2410
	Spica π W.	29 55 10	2492	31 36 35	2497	33 17 53	2505	34 58 59	2514
	α Aquilæ E.	69 35 31	3183	68 9 2	3220	66 43 17	3259	65 18 18	3301
	Mars E.	75 39 17	2618	74 0 47	2637	72 22 42	2655	70 45 1	2673
	SUN E.	108 58 24	2711	107 21 59	2729	105 45 58	2748	104 10 22	2766




CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 8^h, MEAN TIME.

Days of the Month.	Apparent West.	Apparent East.
1	3. 1.	○ 2. 4.
2	3.	○ 2. 1. 4.
3	3. 2. 1.	○ 4.
4	3. ●	○ 1. 4.
5	1. ●	○ 2. 3. 4.
6	3. 1.	○ 3. 4.
7	2.	○ 1. 3. 4.
8	4. ○ 3. 1.	○ 2.
9	3. 4.	○ 1. 2.
10	4. 3. 2. 1.	○
11	4. 2. 3.	○ 1.
12	4. 1.	○ 2. 3.
13	4.	○ 3. 4. 1. ○
14	4. 2.	○ 1. 3.
15	4. 1. 3.	○ 2.
16	3. 4.	○ 2. 1.
17	3. 2. 1.	○ 4.
18	2. 3.	○ 1. 4.
19	1.	○ 3. 2. 4.
20	2.	○ 1. 3. 4.
21	1. ● 2.	○ 3. 4.
22	2. ● 1.	○ 4. 3. ○
23	3.	○ 1. 2. 4.
24	3. 2. 1.	○ 4.
25	2. 3. 4.	○ 1.
26	4. 1.	○ 3. 2.
27	4.	○ 2. 1. 3.
28	4. 2.	○ 3. 1. ●

This Table represents, at 8^h after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page; —the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.		^h ^m ^s	^h ^m ^s	
	1	21 57 41.8	18 46 9.0	Em.
	3	16 26 44.3	13 22 10.2	Em.
	5*	10 55 42.6	7 58 7.2	Em.
	7	5 24 44.8	2 34 8.3	Em.
	8	23 53 42.0	21 10 4.1	Em.
	10	18 22 44.6	15 46 5.4	Em.
	12	12 51 41.3	10 22 0.9	Em.
	14*	7 20 42.9	4 58 1.2	Em.  e *
	16	1 49 40.6	23 33 57.7	Em.
	17	20 18 41.4	18 9 57.2	Em.
	19	14 47 37.7	12 45 52.2	Em.
	21*	9 16 38.9	7 21 52.2	Em.
	23	3 45 35.1	1 57 47.1	Em.
	24	22 14 35.5	20 33 46.2	Em.
	26	16 43 31.3	15 9 40.7	Em.
	28	11 12 30.8	9 45 39.0	Em.
II.	4	11 56 29.9	8 55 8.0	Im.
	4	14 13 54.8	11 12 55.4	Em.
	8	1 14 28.9	22 27 7.8	Im.
	8	3 31 48.8	0 41 50.2	Em.
	11	14 32 24.9	11 59 4.5	Im.  i *
	11	16 49 40.5	14 16 42.6	Em. e *
	15*	6 7 34.5	3 48 37.4	Em.
	18	19 25 26.2	17 20 29.8	Em.
	22*	8 43 20.1	6 52 24.4	Em.
	25	22 1 10.9	20 24 15.9	Em.
III.	4	13 2 20.3	10 1 9.2	Im.
	4	15 10 43.8	12 9 53.8	Em.
	11	17 5 22.4	14 32 27.1	Im.
	11	19 13 32.8	16 40 58.6	Em.
	18	21 7 43.8	19 3 4.2	Im.  i e
	18	23 15 43.9	21 11 25.4	Em. *
	26	1 9 53.1	23 33 29.2	Im. *
	26	3 17 43.8	1 41 40.9	Em.

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h m
	1 15 15		2 12 33	2 14 50	0 19 20	1 21
	3 9 52		4* 7 10	4 9 27	2 13 56	2 16
	5* 4 28		6 1 47	6* 4 4	4 8 31	4 10
	7 23 5		7 20 23	8 22 40	6* 3 7	6* 5
	8 17 41	In	9 15 0	9 17 17	8 21 43	8 23
	10 12 18		11 9 37	11 11 54	9 16 19	9 18
	12* 6 55		13* 4 14	13* 6 31	11 10 55	11 13
	14 1 32	the	15 22 50	15 1 7	13* 5 31	13* 7
	15 20 9		16 17 27	16 19 44	15 0 6	15 2
	17 14 46		18 12 4	18 14 21	16 18 42	16 20
	19 9 23	Shadow.	20* 6 41	20 8 58	18 13 18	18 15
	21* 4 0		22 1 18	22 3 35	20* 7 54	20 10
	23 22 37		23 19 55	23 22 12	22 2 30	22 4
	24 17 14		25 14 32	25 16 49	23 21 5	24 23
	26 11 51		27 9 9	27 11 27	25 15 41	25 17
	28* 6 28				27 10 17	27 12
II.	4* 6 8	4 8 48	2 11 21	2 14 1	2 14 10	2 16
	7 19 43	8 22 22	6 0 55	6* 3 35	6* 3 44	6* 6
	11 9 18	11 11 57	9 14 30	9 17 10	9 17 17	9 19
	15 22 53	In	13* 4 5	13* 6 45	13* 6 51	13 9
	18 12 29	the	16 17 41	16 20 21	16 20 24	17 22
	22 2 5	Shadow.	20* 7 17	20 9 57	20 9 58	20 12
	25 15 42		23 20 53	24 23 33	24 23 31	24 1
			27 10 30	27 13 10	27 13 5	27 15
III.	4* 4 37	4* 7 5	7 18 58	8 21 26	0 19 41	1 21
	11 9 19	11 11 48	15 23 42	15 2 11	8 0 11	8 2
	18 14 5	18 16 34	22* 4 29	22* 6 58	15* 4 41	15* 6
	25 18 54	25 21 22			22 9 11	22 11

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^h .745186. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	-1.1028	+1.1749	-9.3678	+9.7731	^h 3 ^m 14 ^s 37.30	315	31	.085
2	1.1110	1.1676	9.3626	9.7524	3 10 41.39	316	32	.088
3	1.1189	1.1601	9.3574	9.7305	3 6 45.49	317	33	.090
4	-1.1265	+1.1524	-9.3522	+9.7074	3 2 49.58	318	34	.093
5	1.1339	1.1444	9.3470	9.6830	2 58 53.67	319	35	.096
6	1.1410	1.1360	9.3418	9.6572	2 54 57.76	320	36	.099
7	-1.1478	+1.1274	-9.3366	+9.6299	2 51 1.85	321	37	.101
8	1.1544	1.1185	9.3313	9.6009	2 47 5.94	322	38	.104
9	1.1608	1.1093	9.3261	9.5699	2 43 10.03	323	39	.107
10	-1.1669	+1.0997	-9.3209	+9.5367	2 39 14.12	324	40	.110
11	1.1728	1.0897	9.3157	9.5010	2 35 18.21	325	41	.112
12	1.1785	1.0794	9.3105	9.4624	2 31 22.30	326	42	.115
13	-1.1839	+1.0689	-9.3052	+9.4204	2 27 26.40	327	43	.118
14	1.1892	1.0578	9.3000	9.3743	2 23 30.49	328	44	.120
15	1.1943	1.0463	9.2948	9.3233	2 19 34.58	329	45	.123
16	-1.1992	+1.0343	-9.2896	+9.2660	2 15 38.67	330	46	.126
17	1.2039	1.0218	9.2843	9.2011	2 11 42.76	331	47	.129
18	1.2085	1.0089	9.2791	9.1256	2 7 46.85	332	48	.131
19	-1.2128	+0.9954	-9.2738	+9.0355	2 3 50.95	333	49	.134
20	1.2169	0.9814	9.2686	8.9238	1 59 55.04	334	50	.137
21	1.2209	0.9668	9.2633	8.7760	1 55 59.13	335	51	.140
22	-1.2247	+0.9516	-9.2581	+8.5551	1 52 3.22	336	52	.142
23	1.2284	0.9356	9.2528	+8.0934	1 48 7.31	337	53	.145
24	1.2319	0.9190	9.2476	-8.0253	1 44 11.41	338	54	.148
25	-1.2351	+0.9015	-9.2423	-8.5198	1 40 15.50	339	55	.151
26	1.2383	0.8832	9.2370	8.7419	1 36 19.59	340	56	.153
27	1.2413	0.8639	9.2317	8.8848	1 32 23.68	341	57	.156
28	1.2441	0.8436	9.2263	8.9903	1 28 27.78	342	58	.159
29	-1.2469	+0.8222	-9.2210	-9.0734	1 24 31.87	343	59	.162

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	^o ['] ["]	["]	^m ^s	^m ^s	^s
Sat.	1	22 47 55.06	9.349	S. 7 38 48.1	57.04	1 5.36	12 38.75	0.507
Sun.	2	22 51 39.43	9.329	7 15 59.1	57.30	1 5.28	12 26.58	0.526
Mon.	3	22 55 23.33	9.310	6 53 3.8	57.55	1 5.21	12 13.97	0.545
Tues.	4	22 59 6.76	9.290	6 30 2.7	57.79	1 5.14	12 0.89	0.565
Wed.	5	23 2 49.73	9.274	6 6 56.0	57.99	1 5.08	11 47.34	0.581
Thur.	6	23 6 32.31	9.256	5 43 44.2	58.18	1 5.02	11 33.40	0.598
Frid.	7	23 10 14.45	9.240	5 20 27.8	58.37	1 4.95	11 19.04	0.615
Sat.	8	23 13 56.21	9.225	4 57 7.0	58.53	1 4.90	11 4.28	0.630
Sun.	9	23 17 37.60	9.210	4 33 42.3	58.68	1 4.84	10 49.15	0.644
Mon.	10	23 21 18.64	9.195	4 10 14.1	58.80	1 4.79	10 33.69	0.660
Tues.	11	23 24 59.32	9.182	3 46 42.9	58.92	1 4.74	10 17.86	0.678
Wed.	12	23 28 39.69	9.169	3 23 8.9	59.02	1 4.70	10 1.71	0.685
Thur.	13	23 32 19.74	9.157	2 59 32.5	59.09	1 4.66	9 45.26	0.698
Frid.	14	23 35 59.50	9.146	2 35 54.3	59.16	1 4.61	9 28.52	0.709
Sat.	15	23 39 39.00	9.134	2 12 14.4	59.20	1 4.58	9 11.50	0.720
Sun.	16	23 43 18.22	9.125	1 48 33.6	59.24	1 4.55	8 54.22	0.729
Mon.	17	23 46 57.23	9.116	1 24 51.9	59.25	1 4.52	8 36.72	0.738
Tues.	18	23 50 36.01	9.108	1 1 9.8	59.25	1 4.49	8 19.01	0.747
Wed.	19	23 54 14.61	9.100	0 37 27.8	59.24	1 4.46	8 1.09	0.754
Thur.	20	23 57 53.02	9.095	S. 0 13 46.1	59.21	1 4.44	7 43.00	0.759
Frid.	21	0 1 31.29	9.090	N. 0 9 55.0	59.17	1 4.42	7 24.78	0.765
Sat.	22	0 5 9.45	9.085	0 33 35.0	59.11	1 4.41	7 6.43	0.770
Sun.	23	0 8 47.48	9.082	0 57 13.6	59.04	1 4.39	6 47.95	0.772
Mon.	24	0 12 25.44	9.080	1 20 50.5	58.95	1 4.38	6 29.42	0.775
Tues.	25	0 16 3.35	9.078	1 44 25.3	58.84	1 4.38	6 10.82	0.777
Wed.	26	0 19 41.21	9.078	2 7 57.5	58.74	1 4.37	5 52.17	0.776
Thur.	27	0 23 19.08	9.079	2 31 27.2	58.61	1 4.37	5 33.55	0.776
Frid.	28	0 26 56.96	9.080	2 54 53.8	58.47	1 4.38	5 14.92	0.774
Sat.	29	0 30 34.87	9.082	3 18 17.1	58.31	1 4.38	4 56.34	0.773
Sun.	30	0 34 12.84	9.085	3 41 36.5	58.15	1 4.39	4 37.80	0.769
Mon.	31	0 37 50.89	9.090	4 4 52.0	57.96	1 4.40	4 19.35	0.764
Tues.	32	0 41 29.05		N. 4 28 3.0		1 4.42	4 1.01	

* Mean Time of the Semidiameter passing may be found by subtracting 0^m.18 from the *Sidereal Time*.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Sat.	1	22 47 53·09	S. 7 39 0·1	16 9·1	12 38·85	22 35 14·24
Sun.	2	22 51 37·49	7 16 11·0	16 8·9	12 26·69	22 39 10·80
Mon.	3	22 55 21·43	6 53 15·5	16 8·6	12 14·08	22 43 7·35
Tues.	4	22 59 4·90	6 30 14·2	16 8·4	12 1·00	22 47 3·90
Wed.	5	23 2 47·91	6 7 7·4	16 8·1	11 47·45	22 51 0·46
Thur.	6	23 6 30·52	5 43 55·4	16 7·9	11 33·51	22 54 57·01
Frid.	7	23 10 12·71	5 20 38·8	16 7·6	11 19·15	22 58 53·56
Sat.	8	23 13 54·51	4 57 17·8	16 7·3	11 4·39	23 2 50·12
Sun.	9	23 17 35·94	4 33 52·9	16 7·1	10 49·27	23 6 46·67
Mon.	10	23 21 17·02	4 10 24·5	16 6·8	10 33·80	23 10 43·22
Tues.	11	23 24 57·74	3 46 53·0	16 6·5	10 17·97	23 14 39·77
Wed.	12	23 28 38·15	3 23 18·7	16 6·3	10 1·82	23 18 36·33
Thur.	13	23 32 18·25	2 59 42·1	16 6·0	9 45·37	23 22 32·88
Frid.	14	23 35 58·06	2 36 3·6	16 5·8	9 28·63	23 26 29·43
Sat.	15	23 39 37·60	2 12 23·5	16 5·5	9 11·61	23 30 25·99
Sun.	16	23 43 16·87	1 48 42·4	16 5·2	8 54·33	23 34 22·54
Mon.	17	23 46 55·92	1 25 0·4	16 5·0	8 36·83	23 38 19·09
Tues.	18	23 50 34·75	1 1 18·0	16 4·7	8 19·11	23 42 15·64
Wed.	19	23 54 13·39	0 37 35·7	16 4·4	8 1·19	23 46 12·20
Thur.	20	23 57 51·85	S. 0 13 53·7	16 4·2	7 43·10	23 50 8·75
Frid.	21	0 1 30·17	N. 0 9 47·7	16 3·9	7 24·87	23 54 5·30
Sat.	22	0 5 8·37	0 33 28·0	16 3·6	7 6·52	23 58 1·85
Sun.	23	0 8 46·45	0 57 6·9	16 3·3	6 48·04	0 1 58·41
Mon.	24	0 12 24·46	1 20 44·1	16 3·1	6 29·50	0 5 54·96
Tues.	25	0 16 2·41	1 44 19·2	16 2·8	6 10·90	0 9 51·51
Wed.	26	0 19 40·32	2 7 51·8	16 2·5	5 52·25	0 13 48·07
Thur.	27	0 23 18·24	2 31 21·8	16 2·2	5 33·62	0 17 44·62
Frid.	28	0 26 56·16	2 54 48·7	16 2·0	5 14·99	0 21 41·17
Sat.	29	0 30 34·12	3 18 12·3	16 1·7	4 56·40	0 25 37·72
Sun.	30	0 34 12·14	3 41 32·0	16 1·4	4 37·86	0 29 34·28
Mon.	31	0 37 50·24	4 4 47·8	16 1·1	4 19·41	0 33 30·83
Tues.	32	0 41 28·44	N. 4 27 59·1	16 0·8	4 1·06	0 37 27·38

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Paral.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Mid.
1	340° 27' 54" 3	N. 0° 69'	9.9962988	15' 52" 7	15' 45" 7	58' 16" 3	57'
2	341 28 1 7	0° 58'	9.9964117	15 38 7	15 32 1	57 24 9	57
3	342 28 7 7	0° 46'	9.9965256	15 25 8	15 20 0	56 37 5	56
4	343 28 12 1	0° 34'	9.9966405	15 14 5	15 9 6	55 56 1	55
5	344 28 14 7	0° 22'	9.9967561	15 5 0	15 0 9	55 21 2	55
6	345 28 15 8	N. 0° 10'	9.9968723	14 57 3	14 54 0	54 52 7	54
7	346 28 15 1	S. 0° 01'	9.9969891	14 51 2	14 48 8	54 30 6	54
8	347 28 12 7	0° 10'	9.9971062	14 46 7	14 45 0	54 14 1	54
9	348 28 8 5	0° 18'	9.9972235	14 43 6	14 42 6	54 2 7	53
10	349 28 2 5	0° 22'	9.9973412	14 41 8	14 41 5	53 56 1	53
11	350 27 54 3	0° 24'	9.9974590	14 41 5	14 41 9	53 54 9	53
12	351 27 44 3	0° 23'	9.9975770	14 42 6	14 43 8	53 59 0	54
13	352 27 32 2	0° 19'	9.9976951	14 45 4	14 47 4	54 9 1	54
14	353 27 17 9	0° 13'	9.9978134	14 50 0	14 53 0	54 25 9	54
15	354 27 1 4	S. 0° 04'	9.9979319	14 56 6	15 0 6	54 50 1	55
16	355 26 42 6	N. 0° 06'	9.9980507	15 5 4	15 10 6	55 22 4	55
17	356 26 21 6	0° 18'	9.9981699	15 16 3	15 22 6	56 2 7	56
18	357 25 58 3	0° 30'	9.9982895	15 29 4	15 36 6	56 50 6	57
19	358 25 32 7	0° 42'	9.9984097	15 44 1	15 51 8	57 44 5	58
20	359 25 4 8	0° 53'	9.9985304	15 59 6	16 7 3	58 41 3	59
21	0 24 34 7	0° 63'	9.9986518	16 14 6	16 21 6	59 36 7	60
22	1 24 2 5	0° 70'	9.9987741	16 28 0	16 33 4	60 25 6	60
23	2 23 27 9	0° 77'	9.9988970	16 37 9	16 41 2	61 1 9	61
24	3 22 51 4	0° 78'	9.9990207	16 43 2	16 43 9	61 21 6	61
25	4 22 12 6	0° 79'	9.9991452	16 43 2	16 41 1	61 21 4	61
26	5 21 31 8	0° 77'	9.9992706	16 37 8	16 33 3	61 1 7	60
27	6 20 49 2	0° 70'	9.9993965	16 27 8	16 21 4	60 24 8	60
28	7 20 4 6	0° 63'	9.9995231	16 14 3	16 6 7	59 35 3	59
29	8 19 18 1	0° 53'	9.9996501	15 58 8	15 50 9	58 38 5	58
30	9 18 29 7	0° 40'	9.9997774	15 43 1	15 35 4	57 40 8	57
31	10 17 39 6	0° 28'	9.9999050	15 28 1	15 21 2	56 45 8	56
32	11 16 47 7	N. 0° 16'	0.0000327	15 14 8	15 9 0	55 57 2	55

MEAN TIME.

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.		Meridian	
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m		
Sat.	1	237 51 44.5	244 39 26.1	N. 2 57 13.9	N. 2 26 41.5	20.8	17 47.8		
Sun.	2	251 20 40.4	257 55 48.9	1 54 35.2	1 21 25.5	21.8	18 41.3		
Mon.	3	264 25 19.6	270 49 41.5	N. 0 47 40.5	N. 0 13 46.4	22.8	19 34.8		
Tues.	4	277 9 26.3	283 25 5.0	S. 0 19 52.6	S. 0 52 53.5	23.8	20 27.4		
Wed.	5	289 37 7.6	295 46 4.1	1 24 55.5	1 55 39.6	24.8	21 18.5		
Thur.	6	301 52 20.7	307 56 23.2	2 24 48.1	2 52 4.2	25.8	22 7.3		
Frid.	7	313 58 32.1	319 59 8.6	3 17 12.8	3 40 0.3	26.8	22 53.7		
Sat.	8	325 58 29.1	331 56 48.6	4 0 15.0	4 17 44.8	27.8	23 37.8		
Sun.	9	337 54 19.4	343 51 12.7	4 32 21.7	4 43 57.5	28.8	0		
Mon.	10	349 47 39.1	355 43 47.0	4 52 26.1	4 57 42.9	0.0	0 20.1		
Tues.	11	1 39 46.9	7 35 47.9	4 59 45.0	4 58 31.7	1.0	1 1.1		
Wed.	12	13 32 1.4	19 28 38.5	4 54 3.4	4 46 22.7	2.0	1 41.6		
Thur.	13	25 25 54.0	31 24 4.6	4 35 32.7	4 21 39.2	3.0	2 22.4		
Frid.	14	37 23 28.6	43 24 27.9	4 4 48.8	3 45 9.1	4.0	3 4.4		
Sat.	15	49 27 26.5	55 32 51.4	3 22 49.7	2 58 1.3	5.0	3 48.3		
Sun.	16	61 41 12.3	67 53 0.5	2 30 55.8	2 1 47.0	6.0	4 34.9		
Mon.	17	74 8 49.3	80 29 13.1	1 30 50.1	S. 0 58 22.7	7.0	5 24.8		
Tues.	18	86 54 45.5	93 25 59.9	S. 0 24 43.9	N. 0 9 43.8	8.0	6 18.1		
Wed.	19	100 3 27.1	106 47 34.9	N. 0 44 36.3	1 19 25.7	9.0	7 14.4		
Thur.	20	113 38 43.9	120 37 7.8	1 53 41.5	2 26 49.9	10.0	8 12.6		
Frid.	21	127 42 51.4	134 55 46.2	2 58 15.7	3 27 22.0	11.0	9 11.3		
Sat.	22	142 15 32.6	149 41 35.9	3 53 29.1	4 16 1.2	12.0	10 9.2		
Sun.	23	157 13 7.0	164 49 2.2	4 34 23.5	4 48 5.3	13.0	11 5.7		
Mon.	24	172 28 7.1	180 8 56.0	4 56 43.2	5 0 2.0	14.0	12 0.7		
Tues.	25	187 50 0.1	195 29 47.8	4 57 55.3	4 50 27.1	15.0	12 54.7		
Wed.	26	203 6 51.5	210 39 52.1	4 37 50.1	4 20 26.4	16.0	13 48.4		
Thur.	27	218 7 39.3	225 29 18.3	3 58 44.7	3 33 19.2	17.0	14 42.5		
Frid.	28	232 44 6.8	239 51 38.6	3 4 46.6	2 33 46.1	18.0	15 37.3		
Sat.	29	246 51 41.2	253 44 13.9	2 0 55.0	1 26 50.2	19.0	16 32.7		
Sun.	30	260 29 27.3	267 7 40.3	N. 0 52 6.0	N. 0 17 13.4	20.0	17 28.1		
Mon.	31	273 39 18.3	280 4 53.1	S. 0 17 19.5	S. 0 51 7.4	21.0	18 22.5		
Tues.	32	286 24 58.0	292 40 8.4	S. 1 23 47.9	S. 1 55 1.8	22.0	19 14.9		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 1.				MONDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 45 9.47	S. 16 49 19.5	99.19	0	17 35 50.23	S. 22 32 57.7	41.08
1	15 47 26.62	16 59 14.6	98.11	1	17 38 9.20	22 37 4.2	39.79
2	15 49 43.84	17 9 3.2	97.02	2	17 40 28.16	22 41 3.0	38.90
3	15 52 1.12	17 18 45.3	95.92	3	17 42 47.10	22 44 54.0	37.21
4	15 54 18.46	17 28 20.8	94.81	4	17 45 6.02	22 48 37.2	35.91
5	15 56 35.86	17 37 49.7	93.70	5	17 47 24.91	22 52 12.7	34.61
6	15 58 53.33	17 47 11.9	92.58	6	17 49 43.79	22 55 40.4	33.32
7	16 1 10.86	17 56 27.4	91.46	7	17 52 2.63	22 59 0.4	32.02
8	16 3 28.45	18 5 36.2	90.33	8	17 54 21.44	23 2 12.6	30.71
9	16 5 46.11	18 14 38.1	89.19	9	17 56 40.21	23 5 17.0	29.41
10	16 8 3.82	18 23 33.3	88.04	10	17 58 58.95	23 8 13.6	28.11
11	16 10 21.60	18 32 21.5	86.89	11	18 1 17.65	23 11 2.5	26.81
12	16 12 39.43	18 41 2.9	85.74	12	18 3 36.30	23 13 43.6	25.51
13	16 14 57.33	18 49 37.3	84.57	13	18 5 54.90	23 16 17.0	24.27
14	16 17 15.28	18 58 4.8	83.41	14	18 8 13.46	23 18 42.6	23.02
15	16 19 33.30	19 6 25.2	82.23	15	18 10 31.95	23 21 0.5	21.78
16	16 21 51.37	19 14 38.6	81.05	16	18 12 50.39	23 23 10.6	20.53
17	16 24 9.49	19 22 44.9	79.86	17	18 15 8.77	23 25 12.9	19.28
18	16 26 27.67	19 30 44.1	78.67	18	18 17 27.08	23 27 7.5	17.99
19	16 28 45.90	19 38 36.1	77.47	19	18 19 45.33	23 28 54.4	16.73
20	16 31 4.19	19 46 20.9	76.27	20	18 22 3.50	23 30 33.6	15.46
21	16 33 22.52	19 53 58.6	75.06	21	18 24 21.60	23 32 5.0	14.19
22	16 35 40.91	20 1 29.0	73.85	22	18 26 39.62	23 33 28.8	12.97
23	16 37 59.34	S. 20 8 52.1	72.64	23	18 28 57.56	S. 23 34 44.8	11.79
SUNDAY 2.				TUESDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 40 17.82	S. 20 16 7.9	71.41	0	18 31 15.41	S. 23 35 53.2	10.41
1	16 42 36.34	20 23 16.4	70.19	1	18 33 33.18	23 36 53.9	8.94
2	16 44 54.91	20 30 17.5	68.96	2	18 35 50.85	23 37 46.9	7.46
3	16 47 13.52	20 37 11.2	67.72	3	18 38 8.43	23 38 32.3	6.09
4	16 49 32.16	20 43 57.5	66.48	4	18 40 25.91	23 39 10.0	5.01
5	16 51 50.85	20 50 36.4	65.24	5	18 42 43.29	23 39 40.2	3.76
6	16 54 9.57	20 57 7.9	63.99	6	18 45 0.56	23 40 2.7	2.49
7	16 56 28.33	21 3 31.8	62.74	7	18 47 17.72	23 40 17.7	1.42
8	16 58 47.11	21 9 48.3	61.49	8	18 49 34.77	23 40 25.1	0.63
9	17 1 5.93	21 15 57.3	60.24	9	18 51 51.71	23 40 24.9	1.28
10	17 3 24.77	21 21 58.7	58.98	10	18 54 8.53	23 40 17.2	0.93
11	17 5 43.64	21 27 52.5	57.71	11	18 56 25.23	23 40 2.0	0.37
12	17 8 2.54	21 33 38.8	56.45	12	18 58 41.80	23 39 39.4	0.02
13	17 10 21.46	21 39 17.5	55.18	13	19 0 58.24	23 39 9.2	0.46
14	17 12 40.39	21 44 48.6	53.91	14	19 3 14.55	23 38 31.7	0.50
15	17 14 59.35	21 50 12.0	52.64	15	19 5 30.73	23 37 46.7	0.73
16	17 17 18.31	21 55 27.8	51.36	16	19 7 46.77	23 36 54.3	0.96
17	17 19 37.29	22 0 36.0	50.08	17	19 10 2.67	23 35 54.5	1.19
18	17 21 56.28	22 5 36.5	48.80	18	19 12 18.42	23 34 47.4	1.41
19	17 24 15.27	22 10 29.3	47.52	19	19 14 34.03	23 33 32.9	1.64
20	17 26 34.27	22 15 14.4	46.23	20	19 16 49.49	23 32 11.2	1.87
21	17 28 53.27	22 19 51.8	44.95	21	19 19 4.79	23 30 42.2	1.64
22	17 31 12.26	22 24 21.5	43.66	22	19 21 19.94	23 29 6.0	1.74
23	17 33 31.25	22 28 43.5	42.37	23	19 23 34.94	23 27 22.5	1.84
24	17 35 50.23	S. 22 32 57.7		24	19 25 49.77	S. 23 25 31.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 5.				FRIDAY 7.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	19 25 49.77	S.23 25 31.8	19.63	0	21 9 48.98	S.19 47 36.1	69.64
1	19 28 4.44	23 23 34.0	20.82	1	21 11 53.52	19 40 38.2	70.50
2	19 30 18.94	23 21 29.1	22.01	2	21 13 57.82	19 33 35.2	71.36
3	19 32 33.27	23 19 17.1	23.18	3	21 16 1.89	19 26 27.0	72.21
4	19 34 47.43	23 16 58.0	24.35	4	21 18 5.73	19 19 13.8	73.06
5	19 37 1.41	23 14 31.8	25.52	5	21 20 9.33	19 11 55.4	73.89
6	19 39 15.22	23 11 58.7	26.68	6	21 22 12.70	19 4 32.1	74.72
7	19 41 28.85	23 9 18.6	27.84	7	21 24 15.83	18 57 3.8	75.54
8	19 43 42.29	23 6 31.6	28.99	8	21 26 18.74	18 49 30.5	76.35
9	19 45 55.55	23 3 37.6	30.13	9	21 28 21.41	18 41 52.4	77.16
10	19 48 8.63	23 0 36.8	31.27	10	21 30 23.85	18 34 9.5	77.95
11	19 50 21.51	22 57 29.2	32.41	11	21 32 26.06	18 26 21.8	78.74
12	19 52 34.20	22 54 14.8	33.53	12	21 34 28.04	18 18 29.3	79.51
13	19 54 46.70	22 50 53.6	34.65	13	21 36 29.79	18 10 32.2	80.29
14	19 56 59.00	22 47 25.7	35.77	14	21 38 31.31	18 2 30.5	81.05
15	19 59 11.10	22 43 51.0	36.88	15	21 40 32.60	17 54 24.2	81.81
16	20 1 23.00	22 40 9.8	37.98	16	21 42 33.67	17 46 13.3	82.56
17	20 3 34.70	22 36 21.9	39.08	17	21 44 34.50	17 37 58.0	83.30
18	20 5 46.19	22 32 27.4	40.17	18	21 46 35.12	17 29 38.2	84.03
19	20 7 57.48	22 28 26.4	41.25	19	21 48 35.50	17 21 14.0	84.76
20	20 10 8.56	22 24 18.9	42.33	20	21 50 35.66	17 12 45.5	85.48
21	20 12 19.44	22 20 5.0	43.40	21	21 52 35.60	17 4 12.6	86.19
22	20 14 30.10	22 15 44.6	44.46	22	21 54 35.32	16 55 35.5	86.89
23	20 16 40.54	S.22 11 17.8	45.52	23	21 56 34.81	S.16 46 54.1	87.58
THURSDAY 6.				SATURDAY 8.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	20 18 50.78	S.22 6 44.7	46.57	0	21 58 34.09	S.16 38 8.7	88.27
1	20 21 0.80	22 2 5.2	47.62	1	22 0 33.15	16 29 19.0	88.95
2	20 23 10.60	21 57 19.5	48.66	2	22 2 31.98	16 20 25.3	89.62
3	20 25 20.19	21 52 27.6	49.69	3	22 4 30.61	16 11 27.5	90.29
4	20 27 29.55	21 47 29.5	50.71	4	22 6 29.02	16 2 25.8	90.94
5	20 29 38.69	21 42 25.2	51.73	5	22 8 27.21	15 53 20.2	91.59
6	20 31 47.61	21 37 14.9	52.73	6	22 10 25.19	15 44 10.6	92.23
7	20 33 56.30	21 31 58.4	53.74	7	22 12 22.97	15 34 57.3	92.86
8	20 36 4.77	21 26 36.0	54.73	8	22 14 20.53	15 25 40.1	93.48
9	20 38 13.02	21 21 7.6	55.72	9	22 16 17.89	15 16 19.3	94.09
10	20 40 21.03	21 15 33.3	56.70	10	22 18 15.04	15 6 54.7	94.70
11	20 42 28.82	21 9 53.1	57.67	11	22 20 11.98	14 57 26.5	95.30
12	20 44 36.38	21 4 7.1	58.63	12	22 22 8.73	14 47 54.7	95.89
13	20 46 43.71	20 58 15.3	59.59	13	22 24 5.27	14 38 19.4	96.47
14	20 48 50.80	20 52 17.8	60.54	14	22 26 1.62	14 28 40.6	97.04
15	20 50 57.67	20 46 14.5	61.48	15	22 27 57.77	14 18 58.3	97.61
16	20 53 4.30	20 40 5.6	62.42	16	22 29 53.72	14 9 12.6	98.17
17	20 55 10.70	20 33 51.1	63.35	17	22 31 49.48	13 59 23.6	98.72
18	20 57 16.87	20 27 31.0	64.27	18	22 33 45.05	13 49 31.3	99.27
19	20 59 22.80	20 21 5.4	65.18	19	22 35 40.43	13 39 35.7	99.80
20	21 1 28.51	20 14 34.3	66.08	20	22 37 35.62	13 29 36.8	100.33
21	21 3 33.98	20 7 57.8	66.99	21	22 39 30.62	13 19 34.9	100.85
22	21 5 39.21	20 1 15.9	67.88	22	22 41 25.44	13 9 29.7	101.37
23	21 7 44.21	19 54 28.6	68.76	23	22 43 20.08	12 59 21.5	101.87
24	21 9 48.98	S.19 47 36.1		24	22 45 14.54	S.12 49 10.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. D. for 10 ^m .
SUNDAY 9.				TUESDAY 11.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	22 45 14.54	S. 12 49 10.3	102.37	0	0 14 3.94	S. 3 55 14.2	117.4
1	22 47 8.82	12 38 56.1	102.86	1	0 15 52.62	3 43 28.3	117.7
2	22 49 2.92	12 28 38.9	103.35	2	0 17 41.25	3 31 41.6	117.7
3	22 50 56.85	12 18 18.8	103.82	3	0 19 29.84	3 19 54.1	118.1
4	22 52 50.61	12 7 55.8	104.29	4	0 21 18.38	3 8 5.8	118.1
5	22 54 44.20	11 57 30.1	104.75	5	0 23 6.89	2 56 16.7	118.1
6	22 56 37.63	11 47 1.6	105.20	6	0 24 55.36	2 44 26.9	118.1
7	22 58 30.89	11 36 30.4	105.65	7	0 26 43.79	2 32 36.5	118.1
8	23 0 23.98	11 25 56.5	106.09	8	0 28 32.20	2 20 45.5	118.1
9	23 2 16.92	11 15 19.9	106.52	9	0 30 20.58	2 8 53.9	118.1
10	23 4 9.70	11 4 40.8	106.94	10	0 32 8.93	1 57 1.7	118.1
11	23 6 2.32	10 53 59.1	107.36	11	0 33 57.26	1 45 9.0	118.1
12	23 7 54.80	10 43 15.0	107.77	12	0 35 45.58	1 33 15.9	118.1
13	23 9 47.12	10 32 28.4	108.17	13	0 37 33.88	1 21 22.4	118.1
14	23 11 39.30	10 21 39.4	108.56	14	0 39 22.17	1 9 28.4	119.1
15	23 13 31.33	10 10 48.0	108.95	15	0 41 10.46	0 57 34.2	119.1
16	23 15 23.22	9 59 54.3	109.33	16	0 42 58.73	0 45 39.6	119.1
17	23 17 14.97	9 48 58.4	109.70	17	0 44 47.01	0 33 44.8	119.1
18	23 19 6.58	9 38 0.2	110.06	18	0 46 35.29	0 21 49.8	119.1
19	23 20 58.05	9 26 59.9	110.42	19	0 48 23.57	S. 0 9 54.6	119.1
20	23 22 49.40	9 15 57.4	110.77	20	0 50 11.86	N. 0 2 0.7	119.1
21	23 24 40.61	9 4 52.8	111.11	21	0 52 0.15	0 13 56.1	119.1
22	23 26 31.69	8 53 46.1	111.44	22	0 53 48.47	0 25 51.5	119.1
23	23 28 22.65	S. 8 42 37.5	111.77	23	0 55 36.80	N. 0 37 46.9	119.1
MONDAY 10.				WEDNESDAY 12.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	23 30 13.48	S. 8 31 26.9	112.09	0	0 57 25.15	N. 0 49 42.3	119.1
1	23 32 4.19	8 20 14.3	112.40	1	0 59 13.52	1 1 37.5	119.1
2	23 33 54.79	8 8 59.9	112.71	2	1 1 1.92	1 13 32.7	119.1
3	23 35 45.27	7 57 43.7	113.00	3	1 2 50.34	1 25 27.6	119.1
4	23 37 35.64	7 46 25.7	113.30	4	1 4 38.80	1 37 22.4	119.1
5	23 39 25.90	7 35 5.9	113.58	5	1 6 27.30	1 49 16.9	119.1
6	23 41 16.05	7 23 44.4	113.86	6	1 8 15.83	2 1 11.2	118.1
7	23 43 6.10	7 12 21.3	114.13	7	1 10 4.41	2 13 5.1	118.1
8	23 44 56.05	7 0 56.5	114.39	8	1 11 53.03	2 24 58.6	118.1
9	23 46 45.90	6 49 30.2	114.65	9	1 13 41.70	2 36 51.8	118.1
10	23 48 35.66	6 38 2.3	114.90	10	1 15 30.42	2 48 44.5	118.1
11	23 50 25.33	6 26 32.9	115.14	11	1 17 19.20	3 0 36.7	118.1
12	23 52 14.91	6 15 2.1	115.38	12	1 19 8.03	3 12 28.4	118.1
13	23 54 4.40	6 3 29.9	115.60	13	1 20 56.93	3 24 19.5	118.1
14	23 55 53.81	5 51 56.2	115.82	14	1 22 45.89	3 36 10.1	118.1
15	23 57 43.14	5 40 21.3	116.04	15	1 24 34.92	3 48 0.0	118.1
16	23 59 32.39	5 28 45.1	116.24	16	1 26 24.02	3 59 49.2	118.1
17	0 1 21.56	5 17 7.6	116.44	17	1 28 13.19	4 11 37.7	117.1
18	0 3 10.67	5 5 28.9	116.64	18	1 30 2.45	4 23 25.4	117.1
19	0 4 59.70	4 53 49.1	116.82	19	1 31 51.78	4 35 12.3	117.1
20	0 6 48.67	4 42 8.2	117.00	20	1 33 41.20	4 46 58.4	117.1
21	0 8 37.57	4 30 26.2	117.17	21	1 35 30.71	4 58 43.5	117.1
22	0 10 26.42	4 18 43.2	117.34	22	1 37 20.31	5 10 27.8	117.1
23	0 12 15.20	4 6 59.1	117.50	23	1 39 10.01	5 22 11.0	117.1
24	0 14 3.94	S. 3 55 14		24	1 40 59.80	N. 5 33 53.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 13.				SATURDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	1 40 59.80	N. 5 33 53.2	116.86	0	3 11 47.72	N. 14 21 17.3	99.59
1	1 42 49.69	5 45 34.3	116.67	1	3 13 46.20	14 31 14.8	99.03
2	1 44 39.69	5 57 14.4	116.48	2	3 15 44.93	14 41 9.0	98.47
3	1 46 29.80	6 8 53.3	116.28	3	3 17 43.91	14 50 59.8	97.90
4	1 48 20.01	6 20 31.0	116.08	4	3 19 43.15	15 0 47.2	97.31
5	1 50 10.34	6 32 7.4	115.86	5	3 21 42.65	15 10 31.1	96.72
6	1 52 0.79	6 43 42.6	115.64	6	3 23 42.42	15 20 11.4	96.13
7	1 53 51.36	6 55 16.4	115.41	7	3 25 42.45	15 29 48.2	95.52
8	1 55 42.05	7 6 48.9	115.18	8	3 27 42.75	15 39 21.3	94.90
9	1 57 32.87	7 18 20.0	114.94	9	3 29 43.32	15 48 50.7	94.28
10	1 59 23.82	7 29 49.6	114.69	10	3 31 44.16	15 58 16.3	93.64
11	2 1 14.90	7 41 17.7	114.43	11	3 33 45.28	16 7 38.2	93.00
12	2 3 6.12	7 52 44.3	114.17	12	3 35 46.67	16 16 56.2	92.35
13	2 4 57.48	8 4 9.3	113.90	13	3 37 48.35	16 26 10.3	91.69
14	2 6 48.98	8 15 32.7	113.62	14	3 39 50.31	16 35 20.4	91.01
15	2 8 40.63	8 26 54.4	113.33	15	3 41 52.55	16 44 26.5	90.33
16	2 10 32.42	8 38 14.4	113.04	16	3 43 55.08	16 53 28.5	89.64
17	2 12 24.37	8 49 32.6	112.74	17	3 45 57.90	17 2 26.3	88.95
18	2 14 16.47	9 0 49.1	112.43	18	3 48 1.01	17 11 20.0	88.24
19	2 16 8.74	9 12 3.7	112.12	19	3 50 4.41	17 20 9.4	87.52
20	2 18 1.16	9 23 16.4	111.79	20	3 52 8.11	17 28 54.6	86.79
21	2 19 53.75	9 34 27.1	111.46	21	3 54 12.10	17 37 35.3	86.06
22	2 21 46.51	9 45 35.9	111.13	22	3 56 16.39	17 46 11.7	85.31
23	2 23 39.44	N. 9 56 42.7	110.78	23	3 58 20.99	N. 17 54 43.5	84.56
FRIDAY 14.				SUNDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	2 25 32.55	N. 10 7 47.4	110.43	0	4 0 25.88	N. 18 3 10.9	83.79
1	2 27 25.84	10 18 50.0	110.07	1	4 2 31.08	18 11 33.6	83.01
2	2 29 19.31	10 29 50.4	109.70	2	4 4 36.58	18 19 51.7	82.23
3	2 31 12.96	10 40 48.6	109.33	3	4 6 42.40	18 28 5.0	81.44
4	2 33 6.80	10 51 44.6	108.94	4	4 8 48.52	18 36 13.7	80.63
5	2 35 0.83	11 2 38.2	108.55	5	4 10 54.95	18 44 17.4	79.82
6	2 36 55.05	11 13 29.6	108.15	6	4 13 1.70	18 52 16.4	78.99
7	2 38 49.47	11 24 18.5	107.75	7	4 15 8.75	19 0 10.3	78.16
8	2 40 44.10	11 35 5.0	107.33	8	4 17 16.13	19 7 59.3	77.32
9	2 42 38.92	11 45 49.0	106.91	9	4 19 23.82	19 15 43.2	76.47
10	2 44 33.96	11 56 30.4	106.48	10	4 21 31.82	19 23 22.0	75.60
11	2 46 29.20	12 7 9.3	106.04	11	4 23 40.14	19 30 55.6	74.73
12	2 48 24.65	12 17 45.6	105.59	12	4 25 48.79	19 38 24.0	73.85
13	2 50 20.32	12 28 19.1	105.14	13	4 27 57.75	19 45 47.1	72.96
14	2 52 16.21	12 38 50.0	104.68	14	4 30 7.04	19 53 4.8	72.05
15	2 54 12.32	12 49 18.0	104.20	15	4 32 16.64	20 0 17.1	71.14
16	2 56 8.65	12 59 43.3	103.72	16	4 34 26.57	20 7 24.0	70.22
17	2 58 5.21	13 10 5.6	103.24	17	4 36 36.83	20 14 25.2	69.28
18	3 0 2.00	13 20 25.0	102.74	18	4 38 47.41	20 21 20.9	68.34
19	3 1 59.02	13 30 41.5	102.24	19	4 40 58.31	20 28 11.0	67.39
20	3 3 56.28	13 40 54.9	101.72	20	4 43 9.54	20 34 55.3	66.42
21	3 5 53.77	13 51 5.2	101.20	21	4 45 21.09	20 41 33.8	65.45
22	3 7 51.51	14 1 12.5	100.67	22	4 47 32.97	20 48 6.5	64.46
23	3 9 49.49	14 11 16.5	100.13	23	4 49 45.17	20 54 33.3	63.47
24	3 11 47.72	N. 14 21 17.3		24	4 51 57.70	N. 21 0 54.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 17.				WEDNESDAY 19.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	4 51 57.70	N.21 0 54.1	62.46	0	6 44 1.03	N.23 49 14.5	2
1	4 54 10.56	21 7 8.9	61.45	1	6 46 27.68	23 49 32.0	1
2	4 56 23.74	21 13 17.5	60.42	2	6 48 54.55	23 49 40.9	0
3	4 58 37.25	21 19 20.1	59.39	3	6 51 21.62	23 49 41.1	1
4	5 0 51.09	21 25 16.4	58.34	4	6 53 48.89	23 49 32.5	2
5	5 3 5.25	21 31 6.4	57.29	5	6 56 16.35	23 49 15.2	4
6	5 5 19.74	21 36 50.2	56.22	6	6 58 44.00	23 48 49.0	5
7	5 7 34.55	21 42 27.5	55.15	7	7 1 11.84	23 48 14.0	7
8	5 9 49.68	21 47 58.4	54.06	8	7 3 39.86	23 47 30.1	8
9	5 12 5.14	21 53 22.7	52.97	9	7 6 8.06	23 46 37.4	10
10	5 14 20.91	21 58 40.5	51.86	10	7 8 36.42	23 45 35.6	11
11	5 16 37.01	22 3 51.7	50.74	11	7 11 4.95	23 44 25.0	12
12	5 18 53.43	22 8 56.2	49.62	12	7 13 33.64	23 43 5.3	13
13	5 21 10.17	22 13 53.9	48.49	13	7 16 2.48	23 41 36.6	14
14	5 23 27.22	22 18 44.8	47.34	14	7 18 31.48	23 39 58.9	15
15	5 25 44.60	22 23 28.9	46.19	15	7 21 0.61	23 38 12.1	16
16	5 28 2.28	22 28 6.0	45.02	16	7 23 29.89	23 36 16.2	17
17	5 30 20.28	22 32 36.1	43.84	17	7 25 59.30	23 34 11.2	18
18	5 32 38.60	22 36 59.2	42.66	18	7 28 28.83	23 31 57.1	19
19	5 34 57.22	22 41 15.1	41.46	19	7 30 58.49	23 29 33.8	20
20	5 37 16.15	22 45 23.9	40.26	20	7 33 28.27	23 27 1.4	21
21	5 39 35.39	22 49 25.5	39.04	21	7 35 58.16	23 24 19.8	22
22	5 41 54.93	22 53 19.7	37.82	22	7 38 28.15	23 21 29.0	23
23	5 44 14.78	N.22 57 6.7	36.59	23	7 40 58.24	N.23 18 29.1	31
TUESDAY 18.				THURSDAY 20.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	5 46 34.92	N.23 0 46.2	35.34	0	7 43 28.43	N.23 15 19.9	35
1	5 48 55.36	23 4 18.2	34.09	1	7 45 58.71	23 12 1.5	36
2	5 51 16.10	23 7 42.7	32.82	2	7 48 29.07	23 8 33.8	37
3	5 53 37.13	23 10 59.7	31.55	3	7 50 59.51	23 4 57.0	38
4	5 55 58.46	23 14 9.0	30.27	4	7 53 30.03	23 1 10.9	39
5	5 58 20.07	23 17 10.6	28.98	5	7 56 0.61	22 57 15.5	40
6	6 0 41.96	23 20 4.5	27.68	6	7 58 31.25	22 53 11.0	41
7	6 3 4.14	23 22 50.6	26.38	7	8 1 1.95	22 48 57.1	42
8	6 5 26.60	23 25 28.9	25.06	8	8 3 32.70	22 44 34.1	43
9	6 7 49.33	23 27 59.3	23.74	9	8 6 3.50	22 40 1.8	44
10	6 10 12.33	23 30 21.7	22.41	10	8 8 34.34	22 35 20.3	45
11	6 12 35.61	23 32 36.1	21.07	11	8 11 5.21	22 30 29.6	46
12	6 14 59.15	23 34 42.5	19.72	12	8 13 36.11	22 25 29.7	47
13	6 17 22.95	23 36 40.8	18.36	13	8 16 7.04	22 20 20.6	48
14	6 19 47.01	23 38 31.0	17.00	14	8 18 37.99	22 15 2.3	49
15	6 22 11.33	23 40 13.0	15.62	15	8 21 8.95	22 9 34.8	50
16	6 24 35.90	23 41 46.7	14.24	16	8 23 39.92	22 3 58.1	51
17	6 27 0.72	23 43 12.2	12.85	17	8 26 10.90	21 58 12.4	52
18	6 29 25.78	23 44 29.3	11.46	18	8 28 41.87	21 52 17.5	53
19	6 31 51.08	23 45 38.0	10.05	19	8 31 12.84	21 46 13.5	54
20	6 34 16.61	23 46 38.3	8.64	20	8 33 43.80	21 40 0.5	55
21	6 36 42.38	23 47 30.2	7.22	21	8 36 14.74	21 33 38.4	56
22	6 39 8.37	23 48 13.5	5.80	22	8 38 45.66	21 27 7.3	57
23	6 41 34.59	23 48 48.3	4.37	23	8 41 16.55	21 20 27.2	58
	6 44 1.03	N.23 49 14.5		24	8 43 47.40	N.21 13 38.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 21.				SUNDAY 23.		
h m s	° ' "	"		h m s	° ' "	"
8 43 47.40	N.21 13 38.1	69.66	0	10 42 41.56	N.13 6 33.8	130.15
8 46 18.22	21 6 40.1	71.15	1	10 45 7.00	12 53 32.9	131.08
8 48 49.01	20 59 33.2	72.63	2	10 47 32.30	12 40 26.4	132.00
8 51 19.75	20 52 17.5	74.10	3	10 49 57.45	12 27 14.4	132.90
8 53 50.44	20 44 52.9	75.57	4	10 52 22.45	12 13 57.0	133.79
8 56 21.07	20 37 19.5	77.03	5	10 54 47.31	12 0 34.3	134.66
8 58 51.65	20 29 37.3	78.48	6	10 57 12.02	11 47 6.3	135.51
9 1 22.16	20 21 46.4	79.93	7	10 59 36.59	11 33 33.3	136.34
9 3 52.61	20 13 46.8	81.37	8	11 2 1.01	11 19 55.2	137.16
9 6 22.99	20 5 38.6	82.80	9	11 4 25.29	11 6 12.3	137.96
9 8 53.30	19 57 21.8	84.23	10	11 6 49.42	10 52 24.5	138.74
9 11 23.52	19 48 56.5	85.65	11	11 9 13.42	10 38 32.1	139.51
9 13 53.67	19 40 22.6	87.06	12	11 11 37.27	10 24 35.0	140.26
9 16 23.73	19 31 40.2	88.46	13	11 14 0.99	10 10 33.5	140.98
9 18 53.70	19 22 49.5	89.85	14	11 16 24.57	9 56 27.6	141.69
9 21 23.58	19 13 50.4	91.23	15	11 18 48.01	9 42 17.4	142.39
9 23 53.36	19 4 43.0	92.61	16	11 21 11.32	9 28 3.1	143.06
9 26 23.05	18 55 27.3	93.97	17	11 23 34.49	9 13 44.8	143.72
9 28 52.63	18 46 3.5	95.32	18	11 25 57.53	8 59 22.5	144.35
9 31 22.11	18 36 31.6	96.67	19	11 28 20.44	8 44 56.3	144.97
9 33 51.48	18 26 51.6	98.00	20	11 30 43.22	8 30 26.5	145.57
9 36 20.74	18 17 3.6	99.32	21	11 33 5.87	8 15 53.1	146.15
9 38 49.89	18 7 7.7	100.63	22	11 35 28.39	8 1 16.2	146.71
9 41 18.92	N.17 57 3.9	101.93	23	11 37 50.79	N. 7 46 35.9	147.26
SATURDAY 22.				MONDAY 24.		
h m s	° ' "	"		h m s	° ' "	"
9 43 47.84	N.17 46 52.3	103.21	0	11 40 13.07	N. 7 31 52.4	147.78
9 46 16.63	17 36 33.0	104.49	1	11 42 35.22	7 17 5.7	148.28
9 48 45.30	17 26 6.1	105.75	2	11 44 57.26	7 2 16.0	148.77
9 51 13.84	17 15 31.6	107.01	3	11 47 19.18	6 47 23.3	149.24
9 53 42.26	17 4 49.5	108.25	4	11 49 40.98	6 32 27.9	149.69
9 56 10.55	16 54 0.1	109.47	5	11 52 2.67	6 17 29.8	150.12
9 58 38.70	16 43 3.2	110.69	6	11 54 24.25	6 2 29.1	150.53
10 1 6.73	16 31 59.1	111.89	7	11 56 45.73	5 47 25.9	150.92
10 3 34.62	16 20 47.8	113.08	8	11 59 7.09	5 32 20.4	151.29
10 6 2.37	16 9 29.3	114.25	9	12 1 28.36	5 17 12.7	151.64
10 8 29.99	15 58 3.8	115.41	10	12 3 49.52	5 2 2.8	151.98
10 10 57.46	15 46 31.3	116.56	11	12 6 10.59	4 46 51.0	152.29
10 13 24.80	15 34 51.9	117.70	12	12 8 31.56	4 31 37.2	152.59
10 15 51.99	15 23 5.7	118.82	13	12 10 52.44	4 16 21.7	152.86
10 18 19.05	15 11 12.8	119.92	14	12 13 13.22	4 1 4.5	153.12
10 20 45.95	14 59 13.3	121.01	15	12 15 33.92	3 45 45.8	153.36
10 23 12.72	14 47 7.2	122.09	16	12 17 54.53	3 30 25.6	153.57
10 25 39.34	14 34 54.7	123.15	17	12 20 15.06	3 15 4.2	153.77
10 28 5.81	14 22 35.7	124.20	18	12 22 35.51	2 59 41.6	153.95
10 30 32.14	14 10 10.6	125.23	19	12 24 55.88	2 44 17.9	154.11
10 32 58.32	13 57 39.2	126.24	20	12 27 16.17	2 28 53.2	154.25
10 35 24.35	13 45 1.7	127.24	21	12 29 36.40	2 13 27.7	154.37
10 37 50.23	13 32 18.3	128.23	22	12 31 56.55	1 58 1.5	154.47
10 40 15.97	13 19 28.9	129.19	23	12 34 16.63	1 42 34.7	154.55
10 42 41.56	N.13 6 33.8		24	12 36 36.65	N. 1 27 7.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. for
TUESDAY 25.				THURSDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	
0	12 36 36.65	N. 1 27 7.4	154.61	0	14 28 14.41	S. 10 27 38.3	134
1	12 38 56.61	1 11 39.7	154.65	1	14 30 34.48	10 41 14.7	134
2	12 41 16.50	0 56 11.8	154.67	2	14 32 54.60	10 54 46.4	134
3	12 43 36.34	0 40 43.8	154.68	3	14 35 14.79	11 8 13.2	134
4	12 45 56.13	0 25 15.7	154.66	4	14 37 35.03	11 21 35.1	133
5	12 48 15.86	N. 0 9 47.8	154.63	5	14 39 55.33	11 34 52.0	133
6	12 50 35.55	S. 0 5 40.0	154.57	6	14 42 15.69	11 48 3.7	133
7	12 52 55.19	0 21 7.4	154.50	7	14 44 36.11	12 1 10.3	133
8	12 55 14.79	0 36 34.4	154.41	8	14 46 56.60	12 14 11.6	132
9	12 57 34.35	0 52 0.9	154.30	9	14 49 17.15	12 27 7.5	132
10	12 59 53.87	1 7 26.7	154.17	10	14 51 37.77	12 39 58.0	132
11	13 2 13.36	1 22 51.7	154.02	11	14 53 58.45	12 52 43.0	132
12	13 4 32.81	1 38 15.8	153.86	12	14 56 19.20	13 5 22.4	132
13	13 6 52.24	1 53 39.0	153.67	13	14 58 40.02	13 17 56.2	132
14	13 9 11.63	2 9 1.0	153.47	14	15 1 0.90	13 30 24.2	132
15	13 11 31.01	2 24 21.8	153.24	15	15 3 21.85	13 42 46.3	132
16	13 13 50.37	2 39 41.2	153.00	16	15 5 42.87	13 55 2.6	132
17	13 16 9.71	2 54 59.2	152.74	17	15 8 3.96	14 7 12.9	132
18	13 18 29.03	3 10 15.7	152.46	18	15 10 25.13	14 19 17.1	131
19	13 20 48.34	3 25 30.5	152.17	19	15 12 46.36	14 31 15.3	131
20	13 23 7.65	3 40 43.5	151.85	20	15 15 7.66	14 43 7.2	131
21	13 25 26.94	3 55 54.6	151.52	21	15 17 29.03	14 54 52.9	131
22	13 27 46.24	4 11 3.7	151.17	22	15 19 50.48	15 6 32.2	131
23	13 30 5.53	S. 4 26 10.7	150.80	23	15 22 11.99	S. 15 18 5.2	131
WEDNESDAY 26.				FRIDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	
0	13 32 24.82	S. 4 41 15.5	150.41	0	15 24 33.58	S. 15 29 31.7	131
1	13 34 44.12	4 56 18.0	150.01	1	15 26 55.24	15 40 51.7	131
2	13 37 3.42	5 11 18.0	149.59	2	15 29 16.97	15 52 5.1	131
3	13 39 22.74	5 26 15.5	149.15	3	15 31 38.77	16 3 11.8	131
4	13 41 42.06	5 41 10.4	148.69	4	15 34 0.64	16 14 11.8	130
5	13 44 1.40	5 56 2.6	148.22	5	15 36 22.58	16 25 5.0	130
6	13 46 20.76	6 10 51.9	147.72	6	15 38 44.59	16 35 51.4	130
7	13 48 40.13	6 25 38.2	147.22	7	15 41 6.67	16 46 30.9	130
8	13 50 59.52	6 40 21.5	146.69	8	15 43 28.82	16 57 3.5	130
9	13 53 18.94	6 55 1.6	146.15	9	15 45 51.03	17 7 29.0	130
10	13 55 38.38	7 9 38.5	145.59	10	15 48 13.31	17 17 47.5	130
11	13 57 57.85	7 24 12.1	145.01	11	15 50 35.65	17 27 58.9	130
12	14 0 17.35	7 38 42.1	144.42	12	15 52 58.06	17 38 3.2	130
13	14 2 36.88	7 53 8.6	143.81	13	15 55 20.53	17 48 0.2	130
14	14 4 56.45	8 7 31.5	143.19	14	15 57 43.07	17 57 50.0	130
15	14 7 16.05	8 21 50.6	142.54	15	16 0 5.66	18 7 32.4	130
16	14 9 35.69	8 36 5.9	141.89	16	16 2 28.32	18 17 7.5	130
17	14 11 55.37	8 50 17.2	141.22	17	16 4 51.03	18 26 35.2	130
18	14 14 15.09	9 4 24.5	140.53	18	16 7 13.80	18 35 55.4	130
19	14 16 34.85	9 18 27.7	139.82	19	16 9 36.62	18 45 8.1	130
20	14 18 54.67	9 32 26.6	139.10	20	16 11 59.49	18 54 13.3	130
21	14 21 14.52	9 46 21.2	138.37	21	16 14 22.42	19 3 10.9	130
22	14 23 34.43	10 0 11.4	137.62	22	16 16 45.40	19 12 0.8	130
23	14 25 54.39	10 13 57.2	136.85	23	16 19 8.42	19 20 43.1	130
24	14 28 14.41	S. 10 27 38.3		24	16 21 31.49	S. 19 29 17.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 29.				MONDAY 31.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	16 21 31.49	S. 19 29 17.7	84.47	0	18 15 58.12	S. 23 41 56.7	18.86
1	16 23 54.60	19 37 44.5	83.17	1	18 18 19.78	23 43 49.9	17.50
2	16 26 17.76	19 46 3.5	81.87	2	18 20 41.33	23 45 34.8	16.13
3	16 28 40.95	19 54 14.7	80.56	3	18 23 2.76	23 47 11.6	14.77
4	16 31 4.18	20 2 18.1	79.24	4	18 25 24.06	23 48 40.3	13.42
5	16 33 27.45	20 10 13.5	77.92	5	18 27 45.22	23 50 0.8	12.06
6	16 35 50.75	20 18 1.1	76.60	6	18 30 6.26	23 51 13.2	10.71
7	16 38 14.08	20 25 40.7	75.27	7	18 32 27.16	23 52 17.4	9.36
8	16 40 37.43	20 33 12.3	73.93	8	18 34 47.91	23 53 13.6	8.02
9	16 43 0.81	20 40 35.9	72.59	9	18 37 8.53	23 54 1.7	6.68
10	16 45 24.21	20 47 51.5	71.25	10	18 39 28.99	23 54 41.8	5.35
11	16 47 47.63	20 54 59.0	69.90	11	18 41 49.30	23 55 13.9	4.01
12	16 50 11.07	21 1 58.4	68.55	12	18 44 9.46	23 55 38.0	2.69
13	16 52 34.52	21 8 49.7	67.20	13	18 46 29.46	23 55 54.1	1.36
14	16 54 57.99	21 15 32.9	65.84	14	18 48 49.29	23 56 2.3	0.05
15	16 57 21.46	21 22 7.9	64.47	15	18 51 8.96	23 56 2.6	1.27
16	16 59 44.93	21 28 34.7	63.11	16	18 53 28.46	23 55 55.0	2.58
17	17 2 8.41	21 34 53.4	61.74	17	18 55 47.79	23 55 39.5	3.88
18	17 4 31.88	21 41 3.8	60.37	18	18 58 6.94	23 55 16.2	5.18
19	17 6 55.35	21 47 6.0	58.99	19	19 0 25.91	23 54 45.2	6.47
20	17 9 18.82	21 53 0.0	57.62	20	19 2 44.69	23 54 6.4	7.76
21	17 11 42.27	21 58 45.7	56.24	21	19 5 3.29	23 53 19.8	9.04
22	17 14 5.71	22 4 23.1	54.86	22	19 7 21.71	23 52 25.6	10.32
23	17 16 29.12	S. 22 9 52.3	53.48	23	19 9 39.93	S. 23 51 23.7	11.59
SUNDAY 30.				TUESDAY, APRIL 1.			
0	17 18 52.52	S. 22 15 13.1	52.09	0	19 11 57.95	S. 23 50 14.1	
1	17 21 15.89	22 20 25.7	50.71				
2	17 23 39.24	22 25 29.9	49.32				
3	17 26 2.55	22 30 25.8	47.93				
4	17 28 25.82	22 35 13.4	46.54				
5	17 30 49.06	22 39 52.7	45.15				
6	17 33 12.25	22 44 23.6	43.77				
7	17 35 35.40	22 48 46.2	42.37				
8	17 37 58.50	22 53 0.4	40.98				
9	17 40 21.54	22 57 6.3	39.59				
10	17 42 44.53	23 1 3.9	38.20				
11	17 45 7.45	23 4 53.1	36.81				
12	17 47 30.31	23 8 34.0	35.43				
13	17 49 53.10	23 12 6.6	34.04				
14	17 52 15.81	23 15 30.8	32.65				
15	17 54 38.45	23 18 46.7	31.26				
16	17 57 1.01	23 21 54.3	29.88				
17	17 59 23.48	23 24 53.6	28.50				
18	18 1 45.87	23 27 44.5	27.11				
19	18 4 8.16	23 30 27.2	25.73				
20	18 6 30.36	23 33 1.6	24.36				
21	18 8 52.46	23 35 27.8	22.98				
22	18 11 14.46	23 37 45.6	21.61				
23	18 13 36.34	23 39 55.3	20.23				
24	18 15 58.12	S. 23 41 56.7					

PHASES OF THE MOON.

☾ Last Quarter ..	^d 2	^h 0	^m 14.4
● New Moon	9	23	16.7
☽ First Quarter ..	18	1	2.7
○ Full Moon	24	18	13.1
☾ Last Quarter...	31	13	26.4

☾ Apogee	^d 10	^h 18
☾ Perigee	24	12

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			° ' "		° ' "		° ' "		° ' "	
1	Saturn	W.	55 13 55	2489	56 55 24	2506	58 36 29	2521	60 17 13	2538
	Spica π	W.	43 21 7	2569	45 0 45	2582	46 40 5	2595	48 19 7	2608
	Mars	E.	62 42 37	2762	61 7 19	2779	59 32 24	2797	57 57 52	2814
	SUN	E.	96 18 11	2855	94 44 54	2873	93 12 1	2891	91 39 30	2908
2	Saturn	W.	68 35 26	2614	70 14 2	2628	71 52 19	2643	73 30 16	2657
	Spica π	W.	56 29 47	2675	58 7 0	2688	59 43 56	2702	61 20 34	2714
	Mars	E.	50 10 42	2897	48 38 19	2914	47 6 18	2929	45 34 36	2945
	SUN	E.	84 2 22	2993	82 32 0	3008	81 1 57	3025	79 32 15	3040
3	Saturn	W.	81 35 21	2725	83 11 28	2737	84 47 19	2749	86 22 54	2761
	Spica π	W.	69 19 26	2778	70 54 23	2790	72 29 4	2802	74 3 30	2814
	Antares	W.	23 50 44	2924	25 22 33	2916	26 54 32	2912	28 26 36	2910
	Mars	E.	38 0 57	3019	36 31 8	3034	35 1 37	3048	33 32 23	3061
	SUN	E.	72 8 29	3116	70 40 39	3129	69 13 5	3143	67 45 48	3157
4	Saturn	W.	94 16 57	2818	95 51 2	2828	97 24 53	2838	98 58 32	2848
	Spica π	W.	81 51 56	2869	83 24 55	2879	84 57 41	2888	86 30 15	2898
	Antares	W.	36 6 51	2922	37 38 42	2926	39 10 28	2931	40 42 7	2937
	Mars	E.	26 10 21	3128	24 42 45	3140	23 15 24	3153	21 48 19	3167
	SUN	E.	60 33 22	3222	59 7 39	3233	57 42 9	3245	56 16 53	3257
5	Saturn	W.	106 43 42	2893	108 16 10	2901	109 48 28	2909	111 20 35	2916
	Spica π	W.	94 10 1	2944	95 41 24	2953	97 12 36	2960	98 43 39	2968
	Antares	W.	48 18 36	2966	49 49 32	2972	51 20 20	2978	52 51 1	2983
	Mars	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN	E.	49 13 52	3311	47 49 53	3321	46 26 6	3332	45 2 31	3341
6	Saturn	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Spica π	W.	106 16 28	3005	107 46 35	3012	109 16 33	3018	110 46 23	3024
	Antares	W.	60 22 42	3010	61 52 42	3015	63 22 36	3021	64 52 23	3026
	SUN	E.	38 7 23	3389	36 44 54	3399	35 22 36	3409	34 0 30	3419
7	Antares	W.	72 19 54	3047	73 49 9	3052	75 18 18	3056	76 47 23	3059
	SUN	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
8	Antares	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
11	Jupiter	E.	27 49 19	3183	26 22 50	3184	24 56 22	3188	23 29 58	3192
	Aldebaran	E.	59 35 47	3083	58 7 17	3083	56 38 47	3083	55 10 16	3082
12	SUN	W.	27 53 44	3513	29 13 54	3504	30 34 14	3497	31 54 42	3489
	Jupiter	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Aldebaran	E.	47 47 20	3074	46 18 39	3073	44 49 56	3070	43 21 10	3068
	Pollux	E.	91 59 15	3077	90 30 37	3075	89 1 57	3071	87 33 12	3069
13	SUN	W.	38 39 10	3452	40 0 28	3445	41 21 54	3437	42 43 29	3429
	Aldebaran	E.	35 56 36	3055	34 27 31	3052	32 58 23	3049	31 29 11	3046
	Pollux	E.	80 8 26	3049	78 39 14	3045	77 9 57	3039	75 40 33	3035
14	SUN	W.	49 33 36	3389	50 56 5	3379	52 18 45	3371	53 41 35	3361
	Aldebaran	E.	24 2 21	3038	22 32 56	3035	21 3 27	3035	19 33 57	3036
	Pollux	E.	68 11 55	3006	66 41 49	2998	65 11 34	2992	63 41 11	2984
15	SUN	W.	60 38 35	3310	62 2 35	3298	63 26 49	3287	64 51 16	3275
	Jupiter	W.	19 38 48	3051	21 7 58	3034	22 37 29	3018	24 7 20	3001

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
15	Pollux	E.	62 10 38	2977	60 39 56	2969	59 9 4	2961	57 38
16	SUN	W.	66 15 57	3262	67 40 53	3250	69 6 3	3237	70 31
	α Arietis	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Jupiter	W.	25 37 31	2986	27 8 1	2972	28 38 49	2957	30 9
	Pollux	E.	50 0 6	2907	48 27 56	2896	46 55 32	2887	45 22
	Regulus	E.	85 51 45	2887	84 19 9	2876	82 46 19	2864	81 13
	Saturn	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
17	SUN	W.	77 42 43	3151	79 9 51	3136	80 37 17	3120	82 5
	α Arietis	W.	40 18 16	3101	41 46 24	3067	43 15 14	3036	44 44
	Jupiter	W.	37 50 8	2868	39 23 8	2853	40 56 27	2837	42 30
	Pollux	E.	37 36 35	2824	36 2 38	2814	34 28 28	2803	32 54
	Regulus	E.	73 23 49	2788	71 49 5	2774	70 14 3	2760	68 38
	Saturn	E.	114 10 16	2756	112 34 50	2742	110 59 6	2728	109 23
18	SUN	W.	89 28 47	3019	90 58 36	3002	92 28 46	2984	93 59
	α Arietis	W.	52 21 5	2869	53 54 3	2845	55 27 33	2820	57 1
	Jupiter	W.	50 23 40	2739	51 59 28	2723	53 35 38	2705	55 12
	Aldebaran	W.	20 3 57	2717	21 40 14	2693	23 17 3	2671	24 54
	Pollux	E.	24 59 11	2757	23 23 46	2755	21 48 19	2756	20 12
	Regulus	E.	60 37 4	2669	58 59 43	2653	57 22 0	2637	55 43
	Saturn	E.	101 17 46	2635	99 39 39	2619	98 1 10	2602	96 22
19	SUN	W.	101 37 51	2872	103 10 46	2853	104 44 5	2834	106 17
	α Arietis	W.	64 59 26	2681	66 36 31	2660	68 14 5	2638	69 52
	Jupiter	W.	63 20 56	2597	64 59 55	2579	66 39 19	2561	68 19
	Aldebaran	W.	33 8 15	2545	34 48 26	2525	36 29 5	2505	38 10
	Regulus	E.	47 27 55	2537	45 47 33	2520	44 6 48	2503	42 25
	Saturn	E.	88 2 9	2499	86 20 54	2481	84 39 14	2463	82 57
	Spica ♀	E.	101 29 21	2551	99 49 19	2532	98 8 52	2515	96 27
20	SUN	W.	114 12 48	2717	115 49 5	2699	117 25 46	2679	119 2
	α Arietis	W.	78 9 41	2513	79 50 36	2493	81 31 59	2474	83 13
	Jupiter	W.	76 44 43	2448	78 27 9	2430	80 10 1	2412	81 53
	Aldebaran	W.	46 42 37	2389	48 26 28	2369	50 10 47	2350	51 55
	Regulus	E.	33 54 5	2405	32 10 37	2390	30 26 48	2375	28 42
	Saturn	E.	74 20 16	2355	72 35 36	2336	70 50 29	2318	69 4
	Spica ♀	E.	87 57 9	2405	86 13 42	2387	84 29 48	2369	82 45
21	α Arietis	W.	91 49 36	2365	93 34 1	2349	95 18 49	2333	97 4
	Jupiter	W.	90 36 24	2304	92 22 18	2286	94 8 38	2269	95 55
	Aldebaran	W.	60 46 6	2241	62 33 32	2224	64 21 23	2207	66 9
	Saturn	E.	60 10 40	2213	58 22 31	2197	56 33 59	2180	54 45
	Spica ♀	E.	73 57 25	2264	72 10 33	2249	70 23 18	2233	68 35
22	Jupiter	W.	104 55 4	2175	106 44 8	2162	108 33 33	2149	110 23
	Aldebaran	W.	75 17 8	2114	77 7 46	2100	78 58 46	2086	80 50
	Pollux	W.	31 19 6	2163	33 8 29	2144	34 58 21	2126	36 48
	Saturn	E.	45 34 19	2090	43 43 4	2077	41 51 29	2063	39 59
	Spica ♀	E.	59 31 48	2147	57 42 1	2134	55 51 54	2123	54 1
	Antares	E.	105 25 13	2136	103 35 9	2121	101 44 42	2108	99 53
23	Aldebaran	W.	90 11 32	2018	92 4 38	2009	93 57 59	2000	95 51

MEAN TIME.

LUNAR DISTANCES.

Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
ollux	E.	56 6 50	2943	54 35 26	2935	53 3 51	2926	51 32 5	2916
JN	W.	71 57 10	3209	73 23 8	3195	74 49 23	3182	76 15 54	3167
Arietis	W.	34 33 19	3259	35 58 19	3215	37 24 11	3174	38 50 51	3137
ipiter	W.	31 41 21	2928	33 13 5	2913	34 45 7	2898	36 17 28	2884
ollux	E.	43 50 7	2866	42 17 4	2856	40 43 48	2845	39 10 18	2835
egulus	E.	79 39 53	2840	78 6 17	2828	76 32 25	2814	74 58 15	2802
turn	E.	120 29 2	2809	118 54 46	2796	117 20 13	2783	115 45 23	2770
JN	W.	83 33 6	3087	85 1 31	3072	86 30 15	3054	87 59 21	3038
Arietis	W.	46 14 48	2977	47 45 30	2948	49 16 48	2922	50 48 39	2894
ipiter	W.	44 4 8	2805	45 38 29	2789	47 13 11	2772	48 48 15	2756
ollux	E.	31 19 27	2785	29 44 40	2776	28 9 40	2768	26 34 30	2761
egulus	E.	67 3 2	2731	65 27 3	2716	63 50 44	2700	62 14 4	2685
turn	E.	107 46 40	2698	106 9 58	2683	104 32 55	2667	102 55 31	2652
JN	W.	95 30 14	2947	97 1 33	2929	98 33 15	2910	100 5 21	2891
Arietis	W.	58 36 8	2772	60 11 12	2750	61 46 46	2726	63 22 51	2704
ipiter	W.	56 49 8	2670	58 26 28	2652	60 4 13	2634	61 42 22	2615
debaran	W.	26 32 10	2627	28 10 29	2605	29 49 17	2585	31 28 32	2565
ollux	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
egulus	E.	54 5 29	2604	52 26 40	2588	50 47 28	2571	49 7 53	2554
turn	E.	94 43 4	2569	93 3 26	2551	91 23 24	2535	89 42 59	2517
JN	W.	107 51 58	2795	109 26 33	2776	111 1 32	2757	112 36 57	2737
Arietis	W.	71 30 42	2595	73 9 44	2574	74 49 15	2553	76 29 14	2533
ipiter	W.	69 59 23	2523	71 40 4	2504	73 21 11	2486	75 2 44	2467
debaran	W.	39 51 46	2465	41 33 48	2446	43 16 17	2427	44 59 13	2408
egulus	E.	40 44 7	2470	39 2 11	2453	37 19 52	2437	35 37 10	2421
turn	E.	81 14 38	2427	79 31 41	2409	77 48 19	2391	76 4 31	2372
bica m	E.	94 46 41	2478	93 4 57	2460	91 22 47	2441	89 40 11	2423
JN	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Arietis	W.	84 56 6	2436	86 38 50	2417	88 22 0	2399	90 5 36	2382
ipiter	W.	83 37 4	2375	85 21 15	2357	87 5 52	2339	88 50 55	2321
debaran	W.	53 40 46	2313	55 26 26	2295	57 12 33	2277	58 59 6	2259
egulus	E.	26 58 9	2349	25 13 21	2337	23 28 16	2328	21 42 58	2321
turn	E.	67 18 57	2283	65 32 32	2264	63 45 40	2247	61 58 23	2230
bica m	E.	81 0 42	2333	79 15 31	2315	77 29 54	2298	75 43 52	2281
Arietis	W.	98 49 36	2303	100 35 31	2288	102 21 48	2275	104 8 24	2263
ipiter	W.	97 42 32	2237	99 30 5	2221	101 18 2	2205	103 6 22	2190
debaran	W.	67 58 22	2174	69 47 28	2159	71 36 58	2143	73 26 52	2128
turn	E.	52 55 40	2148	51 5 54	2133	49 15 45	2118	47 25 13	2103
bica m	E.	66 47 37	2202	64 59 12	2187	63 10 25	2173	61 21 17	2159
ipiter	W.	112 13 22	2124	114 3 45	2112	115 54 26	2101	117 45 24	2091
debaran	W.	82 41 48	2061	84 33 48	2050	86 26 5	2037	88 18 41	2028
ollux	W.	38 39 25	2093	40 30 35	2079	42 22 7	2065	44 14 0	2053
turn	E.	38 7 19	2040	36 14 47	2030	34 21 59	2019	32 28 55	2010
bica m	E.	52 10 50	2103	50 19 55	2094	48 28 46	2086	46 37 25	2079
tares	E.	98 2 47	2082	96 11 20	2070	94 19 34	2059	92 27 32	2048
debaran	W.	97 45 18	1986	99 39 15	1980	101 33 21	1975	103 27 35	1970

MEAN TIME.											
LUNAR DISTANCES.											
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .		
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	^o ['] ["]	
23	Pollux	W.	46 6 12	2041	47 58 43	2030	49 51 31	2019	51 44 35		
	Saturn	E.	30 35 36	2002	28 42 5	1995	26 48 22	1989	24 54 30		
	Spica π	E.	44 45 53	2074	42 54 13	2069	41 2 26	2066	39 10 34		
	Antares	E.	90 35 12	2039	88 42 38	2030	86 49 50	2021	84 56 49		
24	Pollux	W.	61 12 57	1979	63 7 5	1975	65 1 18	1972	66 53 36		
	Regulus	W.	25 18 36	2004	27 12 4	1996	29 5 45	1990	30 59 35		
	Spica π	E.	29 51 40	2089	28 0 24	2104	26 9 31	2123	24 19 7		
	Antares	E.	75 29 11	1989	73 35 19	1986	71 41 23	1984	69 47 24		
25	Pollux	W.	76 27 24	1974	78 21 39	1977	80 15 49	1981	82 9 53		
	Regulus	W.	40 30 9	1978	42 24 18	1980	44 18 24	1983	46 12 25		
	Antares	E.	60 17 47	1995	58 24 5	2000	56 30 31	2006	54 37 6		
	α Aquilæ	E.	106 6 13	2716	104 29 54	2707	102 53 23	2700	101 16 43		
26	Pollux	W.	91 37 48	2023	93 30 46	2033	95 23 29	2044	97 15 55		
	Regulus	W.	55 40 27	2021	57 33 29	2030	59 26 17	2039	61 18 50		
	Saturn	W.	15 37 7	2027	17 29 59	2030	19 22 47	2034	21 15 28		
	Antares	E.	45 13 25	2066	43 21 33	2079	41 30 2	2094	39 38 53		
	α Aquilæ	E.	93 12 54	2706	91 36 22	2715	90 0 2	2725	88 23 55		
	Mars	E.	- - -	- - -	- - -	- - -	119 29 3	2264	117 42 10		
27	Regulus	W.	70 37 7	2113	72 27 46	2127	74 18 4	2142	76 7 59		
	Saturn	W.	30 35 41	2093	32 26 51	2105	34 17 42	2120	36 8 11		
	Spica π	W.	17 38 52	2421	19 21 57	2382	21 5 58	2356	22 50 36		
	α Aquilæ	E.	80 28 19	2828	78 54 28	2852	77 21 8	2878	75 48 21		
	Mars	E.	108 52 16	2342	107 7 18	2357	105 22 42	2373	103 38 29		
28	Regulus	W.	85 11 35	2240	86 59 3	2258	88 46 4	2276	90 32 39		
	Saturn	W.	45 14 52	2214	47 2 59	2231	48 50 40	2249	50 37 55		
	Spica π	W.	31 36 45	2337	33 21 51	2344	35 6 46	2355	36 51 26		
	α Aquilæ	E.	68 14 5	3076	66 45 26	3117	65 17 37	3160	63 50 40		
	Mars	E.	95 3 24	2477	93 21 39	2497	91 40 21	2515	89 59 28		
	Fomalhaut	E.	99 17 48	2422	97 34 45	2438	95 52 5	2455	94 9 48		
29	Regulus	W.	99 18 52	2387	101 2 45	2406	102 46 11	2425	104 29 10		
	Saturn	W.	59 27 34	2358	61 12 9	2377	62 56 17	2395	64 39 59		
	Spica π	W.	45 30 16	2435	47 13 1	2451	48 55 23	2467	50 37 22		
	α Aquilæ	E.	56 50 40	3483	55 29 57	3549	54 10 27	3621	52 52 15		
	Mars	E.	81 41 50	2633	80 3 40	2653	78 25 57	2673	76 48 41		
	Fomalhaut	E.	85 44 42	2566	84 5 0	2586	82 25 46	2607	80 47 0		
	Sun	E.	121 26 19	2722	119 50 8	2741	118 14 22	2761	116 39 3		
30	Saturn	W.	73 11 49	2507	74 52 53	2525	76 33 31	2543	78 13 44		
	Spica π	W.	59 1 27	2569	60 41 5	2585	62 20 20	2604	63 59 10		
	Mars	E.	68 49 6	2794	67 14 30	2814	65 40 20	2833	64 6 35		
	Fomalhaut	E.	72 40 19	2736	71 4 27	2759	69 29 5	2782	67 54 13		
	Sun	E.	108 48 54	2880	107 16 9	2899	105 43 49	2919	104 11 54		
31	Saturn	W.	86 28 41	2649	88 6 30	2665	89 43 57	2682	91 21 1		
	Spica π	W.	72 7 39	2704	73 44 14	2720	75 20 27	2737	76 56 18		
	Mars	E.	56 24 6	2948	54 52 48	2966	53 21 53	2984	51 51 20		
	Fomalhaut	E.	60 7 37	2927	58 35 52	2954	57 4 41	2979	55 34 2		
	Sun	E.	96 38 21	3032	95 8 48	3050	93 39 37	3068	92 10 48		

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		^o ⁱ ^{''}		^o ⁱ ^{''}		^o ⁱ ^{''}		^o ⁱ ^{''}	
23	Pollux W.	53 37 52	2002	55 31 23	1996	57 25 4	1989	59 18 56	1983
	Saturn E.	23 0 30	1981	21 6 25	1979	19 12 18	1980	17 18 12	1983
	Spica π E.	37 18 39	2065	35 26 46	2067	33 34 56	2071	31 43 12	2079
	Antares E.	83 3 36	2007	81 10 12	2001	79 16 39	1996	77 22 58	1992
24	Pollux W.	68 49 57	1969	70 44 20	1969	72 38 43	1970	74 33 4	1971
	Regulus W.	32 53 33	1981	34 47 38	1978	36 41 47	1977	38 35 58	1977
	Spica π E.	22 29 23	2184	20 40 31	2229	18 52 46	2289	- - -	- - -
	Antares E.	67 53 25	1984	65 59 26	1986	64 5 29	1988	62 11 35	1991
25	Pollux W.	84 3 49	1992	85 57 36	1999	87 51 12	2007	89 44 36	2014
	Regulus W.	48 6 20	1992	50 0 7	1998	51 53 44	2005	53 47 11	2012
	Antares E.	52 43 53	2022	50 50 53	2031	48 58 7	2041	47 5 37	2053
	α Aquilæ E.	99 39 57	2693	98 3 8	2694	96 26 20	2695	94 49 34	2700
26	Pollux W.	99 8 4	2066	100 59 55	2079	102 51 27	2092	104 42 38	2106
	Regulus W.	63 11 6	2061	65 3 5	2073	66 54 45	2086	68 46 6	2099
	Saturn W.	23 7 59	2048	25 0 18	2057	26 52 23	2068	28 44 11	2080
	Antares E.	37 48 11	2129	35 57 56	2149	34 8 11	2170	32 18 58	2194
	α Aquilæ E.	86 48 5	2752	85 12 34	2769	83 37 25	2786	82 2 39	2805
	Mars E.	115 55 33	2287	114 9 15	2300	112 23 15	2313	110 37 35	2328
27	Regulus W.	77 57 31	2173	79 46 39	2189	81 35 23	2206	83 23 42	2223
	Saturn W.	37 58 19	2149	39 48 3	2165	41 37 24	2181	43 26 20	2197
	Spica π W.	24 35 37	2331	26 20 51	2327	28 6 11	2327	29 51 31	2331
	α Aquilæ E.	74 16 9	2935	72 44 35	2968	71 13 42	3002	69 43 31	3038
	Mars E.	101 54 39	2406	100 11 13	2423	98 28 11	2441	96 45 35	2459
28	Regulus W.	92 18 48	2312	94 4 30	2331	95 49 44	2349	97 34 32	2369
	Saturn W.	52 24 44	2285	54 11 6	2302	55 57 2	2321	57 42 31	2339
	Spica π W.	38 35 49	2378	40 19 56	2391	42 3 43	2405	43 47 10	2420
	α Aquilæ E.	62 24 39	3255	60 59 35	3307	59 35 32	3362	58 12 32	3422
	Mars E.	88 19 3	2553	86 39 4	2573	84 59 32	2593	83 20 27	2613
	Fomalhaut E.	92 27 56	2490	90 46 29	2508	89 5 27	2527	87 24 51	2546
29	Regulus W.	106 11 41	2463	107 53 46	2482	109 35 24	2502	111 16 35	2523
	Saturn W.	66 23 14	2433	68 6 2	2451	69 48 24	2470	71 30 19	2488
	Spica π W.	52 18 58	2500	54 0 11	2517	55 41 0	2535	57 21 25	2551
	α Aquilæ E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Mars E.	75 11 53	2714	73 35 31	2734	71 59 36	2754	70 24 8	2774
	Fomalhaut E.	79 8 42	2649	77 30 53	2669	75 53 32	2692	74 16 41	2714
	Sun E.	115 4 9	2801	113 29 42	2820	111 55 40	2841	110 22 5	2859
30	Saturn W.	79 53 32	2580	81 32 55	2597	83 11 54	2615	84 50 29	2632
	Spica π W.	65 37 38	2638	67 15 42	2654	68 53 24	2671	70 30 43	2688
	Mars E.	62 33 16	2873	61 0 22	2892	59 27 53	2911	57 55 48	2929
	Fomalhaut E.	66 19 52	2828	64 46 1	2853	63 12 42	2877	61 39 53	2902
	Sun E.	102 40 24	2958	101 9 18	2977	99 38 36	2995	98 8 17	3014
31	Saturn W.	92 57 44	2714	94 34 6	2729	96 10 7	2744	97 45 48	2759
	Spica π W.	78 31 49	2767	80 7 0	2783	81 41 50	2798	83 16 20	2812
	Mars E.	50 21 10	3019	48 51 21	3037	47 21 54	3053	45 52 47	3070
	Fomalhaut E.	54 3 57	3034	52 34 26	3062	51 5 30	3092	49 37 11	3123
	Sun E.	90 42 20	3103	89 14 14	3119	87 46 27	3136	86 19 1	3152

CONFIGURATIONS OF THE SATELLITES OF JUPITER

At 8^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>	<i>Apparent East.</i>
1	4	1. O 3.
2	-4	3. O -1 2.
3	-4 -3	1. 2. O
4	-4 -3 2	O -1
5	-1 -4	O -3 2
6		O 1. 2. -4 -3
7	2. -1	O 3. -4
8	O 1.	-2 O 3. -4
9	3.	O -1 2. -4
10	3.	1. 2. O 4.
11	-3 -2	O -1 4.
12	● -3	-1 O -2 4.
13		O 1. 2. -3
14	2. 4.	O 3.
15	4. -2	O 1. 3.
16	4. 3.	O -2
17	4. 3.	1. O
18	-4 -3 -2	O -1 4
19	-4 1.	-3 O -2
20	-4	O 1. 2. -3
21	-4 2. -1	O 3.
22	-2 -4	O 1. 3.
23	3. -1	O 2. 4.
24	3.	1. O 2. -4
25	-3 -2	O -1 -4
26	● -2	1. 3. O -2 -4
27		O -1 2. 3. 4.
28	2. -1	O -3 4.
29	-2	O 1. 3. 4.
30	-13	O 4. -2
31	3. 4.	O 2.

This Table represents, at 8^h after *Mean Noon* of each day of the month, the relative position Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a scope that inverts objects. Jupiter is indicated by the white circles (O) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side of or on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the *shadow* of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

TELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	2	h m s 5 41 26.6	h m s 4 21 33.5	Em.
	4	0 10 25.5	22 57 31.1	Em.
	5	18 39 19.7	17 33 24.1	Em.
	7	13 8 18.8	12 9 21.8	Em.
	9*	7 37 12.7	6 45 14.5	Em.
	11	2 6 10.8	1 21 11.3	Em.
	12	20 35 4.3	19 57 3.5	Em.
	14	15 4 1.5	14 32 59.4	Em.
	16	9 32 54.0	9 8 50.7	Em.
	18	4 1 50.9	3 44 46.3	Em.
	19	22 30 42.8	22 20 36.9	Em.
	21	16 59 38.9	16 56 31.7	Em.
	23	11 28 30.3	11 32 21.8	Em.
	25	5 57 25.4	6 8 15.6	Em.
	27	0 26 15.9	0 44 4.8	Em.
	28	18 55 10.6	19 19 58.2	Em.
	30	13 24 0.3	13 55 46.7	Em.
II.	1	11 19 4.0	9 56 9.8	Em.
	5	0 36 57.6	23 28 4.1	Em.
	8	13 54 50.1	12 59 57.3	Em.
	12	3 12 43.6	2 31 51.6	Em.
	15	16 30 38.9	16 3 47.7	Em.
	19	5 48 31.7	5 35 41.2	Em.
	22	19 6 27.5	19 7 37.7	Em.
	26*	8 24 23.9	8 39 34.8	Em.
	29	21 42 18.1	22 11 29.8	Em.
III.	5	5 11 45.2	4 3 36.9	Im.
	5*	7 19 29.0	6 11 41.6	Em.
	12	9 13 39.5	8 33 46.8	Im.
	12	11 21 17.9	10 41 46.1	Em.
	19	13 16 0.1	13 4 23.1	Im.
	19	15 23 34.7	15 12 8.7	Em.
	26	17 17 59.7	17 34 38.3	Im.
	26	19 25 32.4	19 42 31.9	Em.

APPROXIMATE SIDEREAL TIME
OF THE
OCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCULTATIONS.			TRANSITS OF SATELLITES.			TRANSITS OF SHADOWS.		
	Immersion.	Emergence.		Ingress.	Egress.		Ingress.	Egress.	
I.	d h m	d h m		d h m	d h m		d h m	d h m	
	2 1 3			1 3 47	1* 6 4		1 4 53	1*	
	3 19 42			2 22 24	3 0 41		3 23 29	3	
	3 14 20			4 17 1	4 19 18		4 18 4	4	
	7 8 37			6 11 33	6 13 55		6 12 40	6	
	9 8 34			8* 6 13	8 8 33		8* 7 16	8	
	10 22 11	1a		10 0 53	10 3 10		10 1 52	10	
	12 16 42			11 19 30	11 21 47		11 20 28	11	
	14 11 28			13 14 7	13 16 24		13 15 3	13	
	16 0 4	2a		13 8 43	13 11 2		13 9 39	15	
	18 0 41			17 3 22	17 5 39		17 4 13	17	
	20 12 12			18 22 0	19 0 17		18 22 51	19	
	22 8 33	3a		20 16 37	20 18 54		20 17 26	20	
	24 8 33			22 11 14	22 13 31		22 12 2	22	
	26 8 33			24 5 32	24* 5 9		24 6 28	24*	
	28 8 33			26 0 22	26 2 46		26 1 14	26	
	30 8 33			27 12 1	27 21 24		27 19 49	27	
	32 8 33			29 13 41	29 15 1		29 14 25	29	
	34 8 33			31 5 22	31 10 28		31 9 1	31	
II.	d h m	d h m		d h m	d h m		d h m	d h m	
	3 2 37			3 2 37	3 2 37		3 2 37	3	
	6 16 11			6 16 11	6 16 11		6 16 11	6	
	9 3 42			9 3 42	9 3 42		9 3 42	9	
	12 3 42			12 3 42	12 3 42		12 3 42	12	
	15 3 42			15 3 42	15 3 42		15 3 42	15	
	18 3 42			18 3 42	18 3 42		18 3 42	18	
	21 3 42			21 3 42	21 3 42		21 3 42	21	
	24 3 42			24 3 42	24 3 42		24 3 42	24	
	27 3 42			27 3 42	27 3 42		27 3 42	27	
	30 3 42			30 3 42	30 3 42		30 3 42	30	
	33 3 42			33 3 42	33 3 42		33 3 42	33	
III.	d h m	d h m		d h m	d h m		d h m	d h m	
	3 2 37			3 2 37	3 2 37		3 2 37	3	
	6 16 11			6 16 11	6 16 11		6 16 11	6	
	9 3 42			9 3 42	9 3 42		9 3 42	9	
	12 3 42			12 3 42	12 3 42		12 3 42	12	
	15 3 42			15 3 42	15 3 42		15 3 42	15	
	18 3 42			18 3 42	18 3 42		18 3 42	18	
	21 3 42			21 3 42	21 3 42		21 3 42	21	
	24 3 42			24 3 42	24 3 42		24 3 42	24	
	27 3 42			27 3 42	27 3 42		27 3 42	27	
	30 3 42			30 3 42	30 3 42		30 3 42	30	
	33 3 42			33 3 42	33 3 42		33 3 42	33	

For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 00745186 or 505048	From Mean Noon of January 1.	
At Mean Midnight,						Days.	Days of the Year. Fractions of the Year.
Logarithms of							
A	B	C	D				
-1.2469	+0.8222	-9.2210	-9.0734	^h 1 ^m 24 ^s 31.87	343	59	.162
1.2494	0.7995	9.2157	9.1411	1 20 35.96	344	60	.164
1.2518	0.7755	9.2103	9.1983	1 16 40.05	345	61	.167
-1.2541	+0.7499	-9.2049	-9.2474	1 12 44.15	346	62	.170
1.2562	0.7226	9.1995	9.2903	1 8 48.24	347	63	.172
1.2581	0.6934	9.1941	9.3282	1 4 52.33	348	64	.175
-1.2600	+0.6619	-9.1886	-9.3619	1 0 56.43	349	65	.178
1.2617	0.6278	9.1831	9.3922	0 57 0.52	350	66	.181
1.2632	0.5907	9.1775	9.4195	0 53 4.61	351	67	.183
-1.2646	+0.5499	-9.1719	-9.4442	0 49 8.70	352	68	.186
1.2659	0.5049	9.1663	9.4667	0 45 12.80	353	69	.189
1.2670	0.4545	9.1606	9.4871	0 41 16.89	354	70	.192
-1.2680	+0.3974	-9.1549	-9.5058	0 37 20.98	355	71	.194
1.2689	0.3314	9.1491	9.5228	0 33 25.08	356	72	.197
1.2696	0.2536	9.1432	9.5384	0 29 29.17	357	73	.200
-1.2702	+0.1586	-9.1373	-9.5527	0 25 33.26	358	74	.203
1.2707	0.0367	9.1313	9.5657	0 21 37.36	359	75	.205
1.2710	9.8667	9.1253	9.5777	0 17 41.45	360	76	.208
-1.2712	+9.5834	-9.1191	-9.5885	0 13 45.54	361	77	.211
1.2713	+8.4857	9.1129	9.5984	0 9 49.64	362	78	.214
1.2712	-9.5073	9.1065	9.6074	0 5 53.73	363	79	.216
-1.2711	-9.8284	-9.1001	-9.6155	$\left\{ \begin{array}{l} 0 \quad 1 \quad 57.82 \\ 23 \quad 58 \quad 1.92 \end{array} \right\}$	364	80	.219
1.2707	0.0108	9.0936	9.6228	23 54 6.01	0	81	.222
1.2703	0.1387	9.0870	9.6293	23 50 10.10	1	82	.225
-1.2697	-0.2372	-9.0802	-9.6350	23 46 14.19	2	83	.227
1.2690	0.3173	9.0733	9.6401	23 42 18.29	3	84	.230
1.2682	0.3847	9.0663	9.6444	23 38 22.38	4	85	.233
-1.2672	-0.4430	-9.0591	-9.6482	23 34 26.47	5	86	.235
1.2661	0.4942	9.0518	9.6513	23 30 30.57	6	87	.238
1.2649	0.5398	9.0443	9.6538	23 26 34.66	7	88	.241
1.2636	0.5810	9.0366	9.6557	23 22 38.75	8	89	.244
-1.2621	-0.6185	-9.0287	-9.6571	23 18 42.84	9	90	.246

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to subtr. from Apparent Time.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		
		h m s	s	° ' "	"	m s	m s
Tues.	1	0 41 29.05	9.093	N. 4 28 3.0	57.77	1 4.42	4 1.01
Wed.	2	0 45 7.32	9.101	4 51 9.4	57.55	1 4.43	3 42.77
Thur.	3	0 48 45.75	9.107	5 14 10.7	57.33	1 4.45	3 24.70
Frid.	4	0 52 24.32	9.115	5 37 6.5	57.09	1 4.47	3 6.77
Sat.	5	0 56 3.07	9.123	5 59 56.6	56.83	1 4.49	2 49.01
Sun.	6	0 59 42.01	9.131	6 22 40.6	56.56	1 4.52	2 31.45
Mon.	7	1 3 21.15	9.141	6 45 18.1	56.28	1 4.55	2 14.08
Tues.	8	1 7 0.52	9.150	7 7 48.7	55.98	1 4.59	1 56.95
Wed.	9	1 10 40.11	9.160	7 30 12.3	55.66	1 4.63	1 40.03
Thur.	10	1 14 19.96	9.172	7 52 28.1	55.33	1 4.67	1 23.37
Frid.	11	1 18 0.08	9.183	8 14 36.1	54.99	1 4.71	1 6.99
Sat.	12	1 21 40.47	9.195	8 36 35.8	54.63	1 4.75	0 50.86
Sun.	13	1 25 21.15	9.208	8 58 26.8	54.26	1 4.79	0 35.03
Mon.	14	1 29 2.14	9.221	9 20 9.0	53.86	1 4.84	0 19.51
Tues.	15	1 32 43.45	9.235	9 41 41.7	53.45	1 4.89	0 4.31
Wed.	16	1 36 25.09	9.250	10 3 4.6	53.04	1 4.94	0 10.56
Thur.	17	1 40 7.08	9.265	10 24 17.6	52.61	1 5.00	0 25.10
Frid.	18	1 43 49.43	9.280	10 45 20.2	52.16	1 5.06	0 39.25
Sat.	19	1 47 32.16	9.297	11 6 12.1	51.70	1 5.12	0 53.03
Sun.	20	1 51 15.29	9.315	11 26 53.0	51.24	1 5.18	1 6.43
Mon.	21	1 54 58.83	9.332	11 47 22.7	50.75	1 5.24	1 19.40
Tues.	22	1 58 42.80	9.351	12 7 40.6	50.25	1 5.30	1 31.96
Wed.	23	2 2 27.22	9.371	12 27 46.6	49.74	1 5.37	1 44.06
Thur.	24	2 6 12.11	9.390	12 47 40.4	49.22	1 5.44	1 55.68
Frid.	25	2 9 57.47	9.410	13 7 21.6	48.68	1 5.51	2 6.85
Sat.	26	2 13 43.31	9.431	13 26 50.0	48.13	1 5.58	2 17.53
Sun.	27	2 17 29.66	9.453	13 46 5.1	47.57	1 5.65	2 27.71
Mon.	28	2 21 16.53	9.474	14 5 6.8	47.00	1 5.73	2 37.37
Tues.	29	2 25 3.91	9.498	14 23 54.7	46.41	1 5.81	2 46.52
Wed.	30	2 28 51.85	9.520	14 42 28.6	45.81	1 5.88	2 55.11
Thur.	31	2 32 40.32		N. 15 0 48.0		1 5.96	3 3.17

* Mean time of the Semidiameter passing may be found by subtracting 0^h.18 from the Sidereal

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to subt. from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Tues.	1	0 41 28.44	N. 4 27 59.1	16 0.8	4 1.06	0 37 27.38
Wed.	2	0 45 6.76	4 51 5.8	16 0.6	3 42.82	0 41 23.94
Thur.	3	0 48 45.23	5 14 7.4	16 0.3	3 24.74	0 45 20.49
Frid.	4	0 52 23.85	5 37 3.5	16 0.0	3 6.81	0 49 17.04
Sat.	5	0 56 2.64	5 59 53.9	15 59.7	2 49.04	0 53 13.60
Sun.	6	0 59 41.63	6 22 38.2	15 59.4	2 31.48	0 57 10.15
Mon.	7	1 3 20.81	6 45 16.0	15 59.2	2 14.11	1 1 6.70
Tues.	8	1 7 0.22	7 7 46.9	15 58.9	1 56.97	1 5 3.25
Wed.	9	1 10 39.86	7 30 10.7	15 58.6	1 40.05	1 8 59.81
Thur.	10	1 14 19.75	7 52 26.8	15 58.3	1 23.39	1 12 56.36
Frid.	11	1 17 59.91	8 14 35.1	15 58.1	1 7.00	1 16 52.91
Sat.	12	1 21 40.34	8 36 35.0	15 57.8	0 50.87	1 20 49.47
Sun.	13	1 25 21.06	8 58 26.3	15 57.5	0 35.04	1 24 46.02
Mon.	14	1 29 2.09	9 20 8.7	15 57.3	0 19.51	1 28 42.58
Tues.	15	1 32 43.44	9 41 41.6	15 57.0	0 4.31	1 32 39.13
Wed.	16	1 36 25.12	10 3 4.8	15 56.8	0 10.56	1 36 35.68
Thur.	17	1 40 7.14	10 24 18.0	15 56.5	0 25.10	1 40 32.24
Frid.	18	1 43 49.53	10 45 20.8	15 56.2	0 39.26	1 44 28.79
Sat.	19	1 47 32.30	11 6 12.9	15 56.0	0 53.04	1 48 25.34
Sun.	20	1 51 15.46	11 26 54.0	15 55.7	1 6.44	1 52 21.90
Mon.	21	1 54 59.04	11 47 23.8	15 55.5	1 19.41	1 56 18.45
Tues.	22	1 58 43.04	12 7 41.9	15 55.2	1 31.97	2 0 15.01
Wed.	23	2 2 27.49	12 27 48.0	15 55.0	1 44.07	2 4 11.56
Thur.	24	2 6 12.41	12 47 42.0	15 54.7	1 55.70	2 8 8.11
Frid.	25	2 9 57.80	13 7 23.3	15 54.5	2 6.87	2 12 4.67
Sat.	26	2 13 43.67	13 26 51.8	15 54.2	2 17.55	2 16 1.22
Sun.	27	2 17 30.05	13 46 7.1	15 54.0	2 27.73	2 19 57.78
Mon.	28	2 21 16.94	14 5 8.9	15 53.7	2 37.39	2 23 54.33
Tues.	29	2 25 4.35	14 23 56.9	15 53.5	2 46.54	2 27 50.89
Wed.	30	2 28 52.31	14 42 30.8	15 53.2	2 55.13	2 31 47.44
Thur.	31	2 32 40.81	N. 15 0 50.3	15 53.0	3 3.19	2 35 44.00

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Para	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	11 16 47.7	N. 0° 16'	0.0000327	15 14.8	15 9.0	55 57.2	55
2	12 15 54.0	N. 0° 04'	0.0001603	15 3.7	14 59.1	55 16.5	54
3	13 14 58.7	S. 0° 09'	0.0002877	14 55.1	14 51.6	54 44.7	54
4	14 14 1.5	0° 18'	0.0004147	14 48.7	14 46.3	54 21.2	54
5	15 13 2.4	0° 26'	0.0005413	14 44.5	14 43.1	54 5.8	54
6	16 12 1.6	0° 31'	0.0006671	14 42.2	14 41.7	53 57.3	53
7	17 10 58.8	0° 33'	0.0007923	14 41.6	14 41.9	53 55.3	53
8	18 9 54.1	0° 33'	0.0009165	14 42.6	14 43.6	53 59.0	54
9	19 8 47.4	0° 29'	0.0010398	14 45.0	14 46.7	54 7.8	54
10	20 7 38.6	0° 24'	0.0011622	14 48.8	14 51.1	54 21.5	54
11	21 6 27.8	0° 17'	0.0012836	14 53.8	14 56.9	54 40.1	54
12	22 5 14.9	S. 0° 07'	0.0014042	15 0.3	15 4.1	55 3.9	55
13	23 3 59.8	N. 0° 05'	0.0015238	15 8.3	15 12.8	55 33.1	55
14	24 2 42.6	0° 17'	0.0016426	15 17.7	15 23.0	56 7.9	56
15	25 1 23.1	0° 29'	0.0017607	15 28.7	15 34.7	56 48.2	57
16	26 0 1.4	0° 40'	0.0018781	15 41.0	15 47.5	57 33.3	57
17	26 58 37.4	0° 50'	0.0019949	15 54.2	16 0.8	58 21.5	58
18	27 57 11.3	0° 58'	0.0021112	16 7.4	16 13.8	59 10.2	59
19	28 55 43.0	0° 64'	0.0022271	16 19.7	16 25.1	59 55.3	60
20	29 54 12.5	0° 67'	0.0023426	16 29.7	16 33.5	60 32.0	60
21	30 52 40.1	0° 67'	0.0024579	16 36.3	16 37.9	60 56.0	61
22	31 51 5.7	0° 66'	0.0025729	16 38.3	16 37.5	61 3.4	61
23	32 49 29.4	0° 60'	0.0026875	16 35.4	16 32.2	60 52.9	60
24	33 47 51.3	0° 53'	0.0028019	16 27.8	16 22.5	60 25.0	60
25	34 46 11.4	0° 43'	0.0029160	16 16.3	16 9.5	59 42.8	59
26	35 44 29.7	0° 31'	0.0030296	16 2.2	15 54.5	58 50.9	58
27	36 42 46.5	0° 19'	0.0031429	15 46.8	15 39.1	57 54.4	57
28	37 41 1.6	N. 0° 06'	0.0032555	15 31.5	15 24.3	56 58.4	56
29	38 39 15.0	S. 0° 05'	0.0033675	15 17.5	15 11.2	56 7.1	55
30	39 37 27.0	0° 18'	0.0034786	15 5.6	15 0.5	55 23.3	55
31	40 35 37.5	S. 0° 28'	0.0035887	14 56.1	14 52.4	54 48.5	54

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	THE MOON'S						Meridian Passage.
		Longitude.		Latitude.		Age.		
		Noon.	Midnight.	Noon.	Midnight.	Noon.		
Tues.	1	286° 24' 58" 0	292° 40' 8" 4	S. 1° 23' 47" 9	S. 1° 55' 1" 8	22° 0	19 14° 9	
Wed.	2	298 51 1° 2	304 58 12° 2	2 24 32° 0	2 52 2° 8	23° 0	20 4° 9	
Thur.	3	311 2 16° 3	317 3 46° 8	3 17 21° 2	3 40 14° 1	24° 0	20 52° 0	
Frid.	4	323 3 14° 8	329 1 9° 1	4 0 32° 7	4 18 6° 2	25° 0	21 36° 7	
Sat.	5	334 57 55° 2	340 53 56° 1	4 32 46° 6	4 44 26° 8	26° 0	22 19° 2	
Sun.	6	346 49 32° 8	352 45 2° 7	4 53 1° 0	4 58 24° 9	27° 0	23 0° 4	
Mon.	7	358 40 41° 4	4 36 42° 7	5 0 35° 1	4 59 29° 5	28° 0	23 40° 9	
Tues.	8	10 33 17° 0	16 30 35° 5	4 55 8° 6	4 47 33° 0	29° 0	0 14° 6	
Wed.	9	22 28 47° 6	28 28 2° 3	4 36 46° 7	4 22 53° 8	0° 3	0 21° 6	
Thur.	10	34 28 29° 5	40 30 18° 5	4 6 1° 8	3 46 18° 7	1° 3	1 3° 3	
Frid.	11	46 33 41° 2	52 38 50° 7	3 23 55° 7	2 59 4° 1	2° 3	1 46° 7	
Sat.	12	58 46 1° 9	64 55 32° 3	2 31 58° 0	2 2 52° 5	3° 3	2 32° 5	
Sun.	13	71 7 40° 4	77 22 48° 9	1 32 4° 8	S. 0 59 53° 2	4° 3	3 21° 1	
Mon.	14	83 41 20° 1	90 3 41° 1	S. 0 26 38° 1	N. 0 7 18° 9	5° 3	4 12° 8	
Tues.	15	96 30 16° 4	103 1 33° 8	N. 0 41 34° 4	1 15 43° 4	6° 3	5 7° 2	
Wed.	16	109 37 57° 6	116 19 52° 5	1 49 19° 1	2 21 52° 9	7° 3	6 3° 3	
Thur.	17	123 7 37° 6	130 1 29° 6	2 52 55° 0	3 21 53° 8	8° 3	6 59° 9	
Frid.	18	137 1 35° 1	144 7 56° 3	3 48 17° 8	4 11 34° 2	9° 3	7 56° 1	
Sat.	19	151 20 21° 7	158 38 32° 5	4 31 11° 5	4 46 40° 1	10° 3	8 51° 1	
Sun.	20	166 1 54° 7	173 29 45° 0	4 57 34° 8	5 3 33° 7	11° 3	9 45° 0	
Mon.	21	181 1 6° 2	188 34 52° 2	5 4 21° 9	4 59 52° 6	12° 3	10 38° 2	
Tues.	22	196 9 50° 1	203 44 40° 9	4 50 6° 4	4 35 13° 8	13° 3	11 31° 5	
Wed.	23	211 18 5° 0	218 48 46° 0	4 15 34° 9	3 51 34° 5	14° 3	12 25° 5	
Thur.	24	226 15 33° 4	233 37 25° 8	3 23 47° 8	2 52 51° 6	15° 3	13 20° 8	
Frid.	25	240 53 33° 2	248 3 15° 5	2 19 27° 5	1 44 16° 7	16° 3	14 17° 5	
Sat.	26	255 6 7° 9	262 1 56° 3	N. 1 8 0° 0	N. 0 31 16° 0	17° 3	15 14° 9	
Sun.	27	268 50 38° 8	275 32 22° 3	S. 0 5 19° 7	S. 0 41 15° 7	18° 3	16 11° 8	
Mon.	28	282 7 22° 9	288 36 3° 9	1 16 3° 7	1 49 20° 4	19° 3	17 6° 9	
Tues.	29	294 58 52° 3	301 16 20° 1	2 20 44° 9	2 50 0° 1	20° 3	17 59° 2	
Wed.	30	307 29 1° 7	313 37 33° 2	3 16 52° 1	3 41 8° 5	21° 3	18 48° 3	
Thur.	31	319 42 29° 8	325 44 29° 0	S. 4 2 40° 2	S. 4 21 17° 8	22° 3	19 34° 2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>TUESDAY 1.</i>				<i>THURSDAY 3.</i>			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	19 11 57.95	S. 23 50 14.1	12.85	0	20 57 50.52	S. 20 38 10.6	65.44
1	19 14 15.78	23 48 57.0	14.11	1	20 59 56.63	20 31 38.0	66.35
2	19 16 33.40	23 47 32.4	15.36	2	21 2 2.48	20 24 59.9	67.25
3	19 18 50.83	23 46 0.2	16.61	3	21 4 8.07	20 18 16.4	68.14
4	19 21 8.04	23 44 20.5	17.85	4	21 6 13.39	20 11 27.6	69.02
5	19 23 25.05	23 42 33.4	19.09	5	21 8 18.45	20 4 33.5	69.90
6	19 25 41.84	23 40 38.9	20.32	6	21 10 23.25	19 57 34.1	70.76
7	19 27 58.43	23 38 37.0	21.54	7	21 12 27.80	19 50 20.5	71.62
8	19 30 14.79	23 36 27.7	22.76	8	21 14 32.08	19 43 19.8	72.47
9	19 32 30.93	23 34 11.2	23.96	9	21 16 36.11	19 36 4.9	73.32
10	19 34 46.86	23 31 47.4	25.17	10	21 18 39.87	19 28 45.0	74.15
11	19 37 2.55	23 29 16.4	26.36	11	21 20 43.39	19 21 20.1	74.98
12	19 39 18.03	23 26 38.2	27.55	12	21 22 46.64	19 13 50.3	75.79
13	19 41 33.27	23 23 52.9	28.73	13	21 24 49.64	19 6 15.5	76.60
14	19 43 48.29	23 21 0.5	29.91	14	21 26 52.39	18 58 36.0	77.40
15	19 46 3.07	23 18 1.0	31.08	15	21 28 54.89	18 50 51.6	78.19
16	19 48 17.61	23 14 54.6	32.24	16	21 30 57.13	18 43 2.4	78.98
17	19 50 31.92	23 11 41.1	33.40	17	21 32 59.13	18 35 8.5	79.76
18	19 52 45.99	23 8 20.8	34.54	18	21 35 0.87	18 27 10.0	80.53
19	19 54 59.82	23 4 53.5	35.68	19	21 37 2.37	18 19 6.8	81.29
20	19 57 13.40	23 1 19.4	36.82	20	21 39 3.62	18 10 59.0	82.05
21	19 59 26.74	22 57 38.5	37.94	21	21 41 4.62	18 2 46.7	82.80
22	20 1 39.84	22 53 50.8	39.06	22	21 43 5.38	17 54 30.0	83.54
23	20 3 52.69	S. 22 49 56.5	40.17	23	21 45 5.90	S. 17 46 8.8	84.27
<i>WEDNESDAY 2.</i>				<i>FRIDAY 4.</i>			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	20 6 5.29	S. 22 45 55.4	41.28	0	21 47 6.17	S. 17 37 43.1	85.00
1	20 8 17.64	22 41 47.7	42.37	1	21 49 6.21	17 29 13.2	85.71
2	20 10 29.74	22 37 33.5	43.46	2	21 51 6.00	17 20 38.9	86.42
3	20 12 41.59	22 33 12.7	44.54	3	21 53 5.56	17 12 0.4	87.12
4	20 14 53.18	22 28 45.5	45.62	4	21 55 4.89	17 3 17.6	87.82
5	20 17 4.52	22 24 11.8	46.68	5	21 57 3.98	16 54 30.7	88.50
6	20 19 15.60	22 19 31.7	47.74	6	21 59 2.84	16 45 39.7	89.18
7	20 21 26.42	22 14 45.2	48.79	7	22 1 1.47	16 36 44.6	89.85
8	20 23 36.99	22 9 52.5	49.83	8	22 2 59.88	16 27 45.5	90.51
9	20 25 47.30	22 4 53.5	50.87	9	22 4 58.05	16 18 42.4	91.17
10	20 27 57.35	21 59 48.3	51.89	10	22 6 56.00	16 9 35.4	91.81
11	20 30 7.13	21 54 36.9	52.91	11	22 8 53.73	16 0 24.6	92.45
12	20 32 16.66	21 49 19.5	53.92	12	22 10 51.24	15 51 9.8	93.08
13	20 34 25.93	21 43 56.0	54.92	13	22 12 48.53	15 41 51.3	93.71
14	20 36 34.94	21 38 26.4	55.92	14	22 14 45.61	15 32 29.1	94.32
15	20 38 43.68	21 32 50.9	56.90	15	22 16 42.47	15 23 3.1	94.93
16	20 40 52.16	21 27 9.5	57.88	16	22 18 39.12	15 13 33.5	95.53
17	20 43 0.38	21 21 22.2	58.85	17	22 20 35.56	15 4 0.3	96.13
18	20 45 8.33	21 15 29.1	59.82	18	22 22 31.79	14 54 23.6	96.71
19	20 47 16.02	21 9 30.2	60.77	19	22 24 27.82	14 44 43.3	97.29
20	20 49 23.45	21 3 25.6	61.72	20	22 26 23.64	14 34 59.5	97.86
21	20 51 30.61	20 57 15.2	62.66	21	22 28 19.26	14 25 12.3	98.43
22	20 53 37.51	20 50 59.3	63.59	22	22 30 14.69	14 15 21.8	98.98
23	20 55 44.15	20 44 37.7	64.52	23	22 32 9.91	14 5 27.9	99.53
24	20 57 50.52	S. 20 38 10.6		24	22 34 4.94	S. 13 55 30.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 5.				MONDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	22 34 4.94	S. 13 55 30.7	100.08	0	0 3 8.96	S. 5 7 14.7	117.72
1	22 35 59.78	13 45 30.2	100.61	1	0 4 57.74	4 55 28.4	117.92
2	22 37 54.43	13 35 26.6	101.14	2	0 6 46.47	4 43 40.9	118.11
3	22 39 48.89	13 25 19.7	101.66	3	0 8 35.14	4 31 52.3	118.30
4	22 41 43.17	13 15 9.8	102.17	4	0 10 23.76	4 20 2.5	118.48
5	22 43 37.27	13 4 56.8	102.67	5	0 12 12.34	4 8 11.7	118.65
6	22 45 31.18	12 54 40.7	103.17	6	0 14 0.88	3 56 19.8	118.81
7	22 47 24.92	12 44 21.7	103.66	7	0 15 49.38	3 44 26.9	118.97
8	22 49 18.48	12 33 59.7	104.15	8	0 17 37.84	3 32 33.1	119.12
9	22 51 11.87	12 23 34.9	104.62	9	0 19 26.26	3 20 38.3	119.27
10	22 53 5.10	12 13 7.1	105.09	10	0 21 14.66	3 8 42.8	119.40
11	22 54 58.15	12 2 36.6	105.55	11	0 23 3.03	2 56 46.3	119.53
12	22 56 51.04	11 52 3.3	106.00	12	0 24 51.37	2 44 49.2	119.64
13	22 58 43.77	11 41 27.3	106.45	13	0 26 39.70	2 32 51.3	119.76
14	23 0 36.34	11 30 48.5	106.89	14	0 28 27.99	2 20 52.7	119.87
15	23 2 28.75	11 20 7.2	107.33	15	0 30 16.28	2 8 53.5	119.97
16	23 4 21.01	11 9 23.2	107.75	16	0 32 4.56	1 56 53.7	120.07
17	23 6 13.12	10 58 36.7	108.17	17	0 33 52.82	1 44 53.3	120.15
18	23 8 5.08	10 47 47.7	108.59	18	0 35 41.08	1 32 52.4	120.24
19	23 9 56.90	10 36 56.1	108.99	19	0 37 29.34	1 20 51.0	120.31
20	23 11 48.57	10 26 2.2	109.39	20	0 39 17.60	1 8 49.1	120.38
21	23 13 40.10	10 15 5.8	109.79	21	0 41 5.86	0 56 46.8	120.44
22	23 15 31.50	10 4 7.1	110.17	22	0 42 54.13	0 44 44.2	120.49
23	23 17 22.76	S. 9 53 6.1	110.55	23	0 44 42.41	S. 0 32 41.2	120.54
SUNDAY 6.				TUESDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	23 19 13.89	S. 9 42 2.8	110.93	0	0 46 30.70	S. 0 20 38.0	120.59
1	23 21 4.89	9 30 57.2	111.30	1	0 48 19.01	S. 0 8 34.5	120.62
2	23 22 55.76	9 19 49.4	111.65	2	0 50 7.33	N. 0 3 29.3	120.65
3	23 24 46.51	9 8 39.5	112.00	3	0 51 55.68	0 15 33.2	120.67
4	23 26 37.14	8 57 27.4	112.34	4	0 53 44.06	0 27 37.2	120.68
5	23 28 27.65	8 46 13.4	112.68	5	0 55 32.46	0 39 41.3	120.69
6	23 30 18.05	8 34 57.3	113.00	6	0 57 20.90	0 51 45.4	120.69
7	23 32 8.33	8 23 39.3	113.32	7	0 59 9.37	1 3 49.5	120.68
8	23 33 58.51	8 12 19.4	113.64	8	1 0 57.87	1 15 53.5	120.66
9	23 35 48.58	8 0 57.5	113.94	9	1 2 46.42	1 27 57.5	120.64
10	23 37 38.55	7 49 33.9	114.24	10	1 4 35.01	1 40 1.3	120.61
11	23 39 28.41	7 38 8.5	114.53	11	1 6 23.65	1 52 5.0	120.57
12	23 41 18.19	7 26 41.3	114.80	12	1 8 12.34	2 4 8.4	120.52
13	23 43 7.87	7 15 12.5	115.07	13	1 10 1.05	2 16 11.5	120.47
14	23 44 57.45	7 3.42.1	115.34	14	1 11 49.82	2 28 14.4	120.41
15	23 46 46.95	6 52 10.0	115.61	15	1 13 38.65	2 40 16.9	120.35
16	23 48 36.36	6 40 36.4	115.87	16	1 15 27.55	2 52 18.9	120.27
17	23 50 25.69	6 29 1.2	116.12	17	1 17 16.52	3 4 20.6	120.19
18	23 52 14.94	6 17 24.5	116.36	18	1 19 5.57	3 16 21.7	120.11
19	23 54 4.12	6 5 46.3	116.60	19	1 20 54.70	3 28 22.4	120.01
20	23 55 53.22	5 54 6.7	116.83	20	1 22 43.91	3 40 22.5	119.91
21	23 57 42.25	5 42 25.7	117.06	21	1 24 33.21	3 52 21.9	119.80
22	23 59 31.22	5 30 43.4	117.28	22	1 26 22.61	4 4 20.7	119.69
23	0 1 20.12	5 18 59.7	117.49	23	1 28 12.10	4 16 18.9	119.56
24	0 3 8.96	S. 5 7 14.7		24	1 30 1.70	N. 4 28 16.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. for
WEDNESDAY 9.				FRIDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	
0	1 30 1'70	N. 4 28 16'2	119'44	0	3 0 21'50	N. 13 32 38'0	103
1	1 31 51'33	4 40 12'9	119'30	1	3 2 18'95	13 43 1'9	103
2	1 33 41'05	4 52 8'6	119'15	2	3 4 16'63	13 53 22'5	102
3	1 35 30'87	5 4 3'6	119'00	3	3 6 14'54	14 3 40'0	102
4	1 37 20'79	5 15 57'6	118'84	4	3 8 12'68	14 13 54'2	101
5	1 39 10'81	5 27 50'6	118'67	5	3 10 11'06	14 24 5'1	101
6	1 41 0'94	5 39 42'6	118'50	6	3 12 9'68	14 34 12'7	100
7	1 42 51'18	5 51 33'6	118'31	7	3 14 8'54	14 44 16'8	100
8	1 44 41'53	6 3 23'5	118'12	8	3 16 7'64	14 54 17'4	99
9	1 46 32'00	6 15 12'2	117'92	9	3 18 6'98	15 4 14'6	98
10	1 48 22'58	6 26 59'7	117'72	10	3 20 6'57	15 14 8'1	98
11	1 50 13'29	6 38 46'1	117'51	11	3 22 6'41	15 23 58'0	97
12	1 52 4'12	6 50 31'1	117'28	12	3 24 6'50	15 33 44'2	97
13	1 53 55'08	7 2 14'8	117'05	13	3 26 6'84	15 43 26'7	96
14	1 55 46'17	7 13 57'1	116'82	14	3 28 7'44	15 53 5'4	95
15	1 57 37'40	7 25 38'0	116'57	15	3 30 8'30	16 2 40'2	95
16	1 59 28'76	7 37 17'4	116'32	16	3 32 9'41	16 12 11'1	94
17	2 1 20'26	7 48 55'3	116'06	17	3 34 10'78	16 21 38'0	93
18	2 3 11'90	8 0 31'7	115'79	18	3 36 12'41	16 31 0'9	93
19	2 5 3'69	8 12 6'4	115'52	19	3 38 14'31	16 40 19'7	92
20	2 6 55'63	8 23 39'5	115'23	20	3 40 16'48	16 49 34'4	91
21	2 8 47'72	8 35 10'9	114'94	21	3 42 18'90	16 58 44'9	91
22	2 10 39'96	8 46 40'6	114'64	22	3 44 21'66	17 7 51'2	90
23	2 12 32'35	N. 8 58 8'5	114'34	23	3 46 24'50	N. 17 16 53'2	89
THURSDAY 10.				SATURDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	
0	2 14 24'91	N. 9 9 34'5	114'02	0	3 48 27'80	N. 17 25 50'8	88
1	2 16 17'63	9 20 58'6	113'70	1	3 50 31'31	17 34 44'0	88
2	2 18 10'51	9 32 20'8	113'37	2	3 52 35'10	17 43 32'8	87
3	2 20 3'57	9 43 41'0	113'03	3	3 54 39'17	17 52 17'0	86
4	2 21 56'79	9 54 59'2	112'68	4	3 56 43'51	18 0 56'6	85
5	2 23 50'19	10 6 15'3	112'33	5	3 58 48'13	18 9 31'6	85
6	2 25 43'77	10 17 29'3	111'96	6	4 0 53'02	18 18 2'0	84
7	2 27 37'52	10 28 41'1	111'59	7	4 2 58'20	18 26 27'5	83
8	2 29 31'46	10 39 50'6	111'21	8	4 5 3'66	18 34 48'3	82
9	2 31 25'58	10 50 57'8	110'82	9	4 7 9'40	18 43 4'1	81
10	2 33 19'89	11 2 2'8	110'42	10	4 9 15'42	18 51 15'1	81
11	2 35 14'39	11 13 5'3	110'02	11	4 11 21'72	18 59 21'1	80
12	2 37 9'09	11 24 5'4	109'60	12	4 13 28'31	19 7 22'0	79
13	2 39 3'98	11 35 3'0	109'18	13	4 15 35'18	19 15 17'8	78
14	2 40 59'06	11 45 58'1	108'75	14	4 17 42'34	19 23 8'5	77
15	2 42 54'35	11 56 50'5	108'31	15	4 19 49'79	19 30 54'0	76
16	2 44 49'84	12 7 40'4	107'86	16	4 21 57'52	19 38 34'2	75
17	2 46 45'54	12 18 27'5	107'40	17	4 24 5'54	19 46 9'1	74
18	2 48 41'46	12 29 11'9	106'94	18	4 26 13'84	19 53 38'6	74
19	2 50 37'58	12 39 53'5	106'46	19	4 28 22'44	20 1 2'6	73
20	2 52 33'92	12 50 32'3	105'98	20	4 30 31'32	20 8 21'2	72
21	2 54 30'48	13 1 8'2	105'49	21	4 32 40'49	20 15 34'2	71
22	2 56 27'27	13 11 41'2	104'99	22	4 34 49'95	20 22 41'6	70
23	2 58 24'27	13 22 11'1	104'49	23	4 36 59'70	20 29 43'3	69
24	3 0 21'50	N. 13 32 38'0		24	4 39 9'74	N. 20 36 39'3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 13.				TUESDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 39 9.74	N. 20 36 39.3	68.36	0	6 28 29.34	N. 23 59 35.1	11.85
1	4 41 20.07	20 43 29.4	67.39	1	6 30 51.75	24 0 46.2	10.49
2	4 43 30.68	20 50 13.8	66.41	2	6 33 14.34	24 1 49.2	9.13
3	4 45 41.59	20 56 52.2	65.41	3	6 35 37.12	24 2 43.9	7.76
4	4 47 52.78	21 3 24.7	64.41	4	6 38 0.06	24 3 30.5	6.38
5	4 50 4.26	21 9 51.2	63.40	5	6 40 23.17	24 4 8.8	5.00
6	4 52 16.03	21 16 11.6	62.38	6	6 42 46.46	24 4 38.8	3.61
7	4 54 28.08	21 22 25.9	61.36	7	6 45 9.90	24 5 0.5	2.22
8	4 56 40.41	21 28 34.0	60.32	8	6 47 33.50	24 5 13.8	0.83
9	4 58 53.03	21 34 35.9	59.27	9	6 49 57.26	24 5 18.8	0.57
10	5 1 5.94	21 40 31.6	58.22	10	6 52 21.16	24 5 15.3	1.98
11	5 3 19.12	21 46 20.9	57.15	11	6 54 45.21	24 5 3.5	3.38
12	5 5 32.59	21 52 3.8	56.09	12	6 57 9.40	24 4 43.2	4.80
13	5 7 46.33	21 57 40.3	55.00	13	6 59 33.72	24 4 14.4	6.21
14	5 10 0.35	22 3 10.3	53.91	14	7 1 58.18	24 3 37.1	7.63
15	5 12 14.65	22 8 33.8	52.81	15	7 4 22.76	24 2 51.3	9.06
16	5 14 29.23	22 13 50.6	51.70	16	7 6 47.46	24 1 57.0	10.48
17	5 16 44.08	22 19 0.8	50.58	17	7 9 12.27	24 0 54.1	11.91
18	5 18 59.21	22 24 4.3	49.45	18	7 11 37.21	23 59 42.6	13.35
19	5 21 14.60	22 29 1.0	48.31	19	7 14 2.24	23 58 22.5	14.78
20	5 23 30.27	22 33 50.9	47.17	20	7 16 27.39	23 56 53.8	16.22
21	5 25 46.20	22 38 33.9	46.01	21	7 18 52.63	23 55 16.5	17.66
22	5 28 2.40	22 43 10.0	44.85	22	7 21 17.97	23 53 30.5	19.10
23	5 30 18.87	N. 22 47 39.1	43.68	23	7 23 43.40	N. 23 51 35.9	20.55
MONDAY 14.				WEDNESDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	5 32 35.60	N. 22 52 1.1	42.49	0	7 26 8.91	N. 23 49 32.6	22.00
1	5 34 52.60	22 56 16.0	41.30	1	7 28 34.50	23 47 20.7	23.44
2	5 37 9.85	23 0 23.8	40.10	2	7 31 0.17	23 45 0.0	24.89
3	5 39 27.36	23 4 24.4	38.89	3	7 33 25.91	23 42 30.6	26.34
4	5 41 45.13	23 8 17.8	37.68	4	7 35 51.72	23 39 52.6	27.79
5	5 44 3.15	23 12 3.9	36.46	5	7 38 17.59	23 37 5.8	29.25
6	5 46 21.41	23 15 42.6	35.23	6	7 40 43.52	23 34 10.3	30.70
7	5 48 39.93	23 19 14.0	33.99	7	7 43 9.51	23 31 6.1	32.15
8	5 50 58.68	23 22 37.9	32.74	8	7 45 35.54	23 27 53.2	33.61
9	5 53 17.68	23 25 54.4	31.49	9	7 48 1.62	23 24 31.6	35.06
10	5 55 36.91	23 29 3.3	30.23	10	7 50 27.73	23 21 1.2	36.51
11	5 57 56.38	23 32 4.7	28.96	11	7 52 53.89	23 17 22.1	37.97
12	6 0 16.08	23 34 58.4	27.69	12	7 55 20.07	23 13 34.4	39.42
13	6 2 36.01	23 37 44.6	26.41	13	7 57 46.27	23 9 37.9	40.87
14	6 4 56.16	23 40 23.0	25.12	14	8 0 12.49	23 5 32.7	42.32
15	6 7 16.53	23 42 53.7	23.82	15	8 2 38.73	23 1 18.8	43.77
16	6 9 37.12	23 45 16.6	22.52	16	8 5 4.98	22 56 56.2	45.21
17	6 11 57.93	23 47 31.7	21.21	17	8 7 31.24	22 52 24.9	46.66
18	6 14 18.95	23 49 38.9	19.89	18	8 9 57.50	22 47 44.9	48.10
19	6 16 40.18	23 51 38.3	18.57	19	8 12 23.76	22 42 56.3	49.55
20	6 19 1.62	23 53 29.7	17.24	20	8 14 50.02	22 37 59.0	50.99
21	6 21 23.26	23 55 13.1	15.90	21	8 17 16.27	22 32 53.1	52.42
22	6 23 45.09	23 56 48.5	14.56	22	8 19 42.51	22 27 38.5	53.86
23	6 26 7.12	23 58 15.8	13.21	23	8 22 8.73	22 22 15.4	55.29
24	6 28 29.34	N. 23 59 35.1		24	8 24 34.93	N. 22 16 43.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 17.				SATURDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 24 34.93	N. 22 16 43.6	56.73	0	10 20 8.68	N. 15 13 37.5	117.79
1	8 27 1.11	22 11 3.3	58.15	1	10 22 30.59	15 1 50.7	118.83
2	8 29 27.26	22 5 14.4	59.57	2	10 24 52.39	14 49 57.8	119.85
3	8 31 53.38	21 59 16.9	60.99	3	10 27 14.07	14 37 58.7	120.87
4	8 34 19.46	21 53 11.0	62.41	4	10 29 35.63	14 25 53.4	121.87
5	8 36 45.51	21 46 56.5	63.82	5	10 31 57.08	14 13 42.2	122.86
6	8 39 11.51	21 40 33.6	65.22	6	10 34 18.41	14 1 25.0	123.84
7	8 41 37.46	21 34 2.3	66.62	7	10 36 39.64	13 49 2.0	124.80
8	8 44 3.36	21 27 22.6	68.02	8	10 39 0.74	13 36 33.2	125.75
9	8 46 29.21	21 20 34.4	69.41	9	10 41 21.74	13 23 58.7	126.69
10	8 48 55.00	21 13 38.0	70.80	10	10 43 42.62	13 11 18.5	127.61
11	8 51 20.73	21 6 33.2	72.18	11	10 46 3.40	12 58 32.8	128.52
12	8 53 46.40	20 59 20.1	73.55	12	10 48 24.06	12 45 41.7	129.41
13	8 56 12.00	20 51 58.9	74.92	13	10 50 44.61	12 32 45.2	130.30
14	8 58 37.52	20 44 29.4	76.28	14	10 53 5.06	12 19 43.4	131.17
15	9 1 2.97	20 36 51.7	77.64	15	10 55 25.40	12 6 36.4	132.02
16	9 3 28.35	20 29 5.9	78.99	16	10 57 45.64	11 53 24.3	132.86
17	9 5 53.65	20 21 11.9	80.33	17	11 0 5.77	11 40 7.2	133.69
18	9 8 18.87	20 13 9.9	81.67	18	11 2 25.80	11 26 45.1	134.50
19	9 10 44.00	20 4 59.9	83.00	19	11 4 45.74	11 13 18.1	135.30
20	9 13 9.06	19 56 41.9	84.33	20	11 7 5.57	10 59 46.3	136.08
21	9 15 34.02	19 48 15.9	85.64	21	11 9 25.31	10 46 9.8	136.84
22	9 17 58.89	19 39 42.1	86.95	22	11 11 44.95	10 32 28.8	137.60
23	9 20 23.67	N. 19 31 0.4	88.25	23	11 14 4.50	N. 10 18 43.2	138.34
FRIDAY 18.				SUNDAY 20.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 22 48.36	N. 19 22 10.8	89.55	0	11 16 23.96	N. 10 4 53.2	139.06
1	9 25 12.95	19 13 13.5	90.84	1	11 18 43.33	9 50 58.8	139.77
2	9 27 37.45	19 4 8.5	92.12	2	11 21 2.62	9 37 0.2	140.46
3	9 30 1.85	18 54 55.8	93.39	3	11 23 21.82	9 22 57.4	141.14
4	9 32 26.14	18 45 35.5	94.65	4	11 25 40.94	9 8 50.6	141.80
5	9 34 50.33	18 36 7.6	95.90	5	11 27 59.98	8 54 39.8	142.45
6	9 37 14.42	18 26 32.2	97.14	6	11 30 18.94	8 40 25.1	143.08
7	9 39 38.40	18 16 49.3	98.38	7	11 32 37.83	8 26 6.6	143.69
8	9 42 2.27	18 6 59.1	99.60	8	11 34 56.64	8 11 44.5	144.29
9	9 44 26.03	17 57 1.5	100.81	9	11 37 15.38	7 57 18.8	144.87
10	9 46 49.69	17 46 56.6	102.02	10	11 39 34.05	7 42 49.6	145.43
11	9 49 13.22	17 36 44.5	103.21	11	11 41 52.65	7 28 17.0	145.98
12	9 51 36.65	17 26 25.2	104.40	12	11 44 11.19	7 13 41.1	146.51
13	9 53 59.96	17 15 58.8	105.57	13	11 46 29.07	6 59 2.0	147.03
14	9 56 23.15	17 5 25.4	106.74	14	11 48 48.69	6 44 19.9	147.53
15	9 58 46.23	16 54 45.0	107.89	15	11 51 6.45	6 29 34.7	148.01
16	10 1 9.19	16 43 57.6	109.03	16	11 53 24.76	6 14 46.7	148.47
17	10 3 32.04	16 33 3.4	110.17	17	11 55 43.02	5 59 55.8	148.92
18	10 5 54.77	16 22 2.4	111.29	18	11 58 1.23	5 45 2.3	149.35
19	10 8 17.38	16 10 54.7	112.40	19	12 0 19.40	5 30 6.2	149.76
20	10 10 39.87	15 59 40.3	113.50	20	12 2 37.52	5 15 7.6	150.16
21	10 13 2.25	15 48 19.3	114.59	21	12 4 55.60	5 0 6.7	150.54
22	10 15 24.51	15 36 51.8	115.66	22	12 7 13.65	4 45 3.4	150.90
23	10 17 46.65	15 25 17.8	116.73	23	12 9 31.67	4 29 58.0	151.25
24	10 20 8.68	N. 15 13 37.5		24	12 11 49.65	N. 4 14 50.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 21.				WEDNESDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	12 11 49.65	N. 4 14 50.5	151.57	0	14 2 35.03	S. 7 56 23.4	145.96
1	12 14 7.60	3 59 41.1	151.88	1	14 4 55.10	8 10 59.2	145.40
2	12 16 25.53	3 44 29.8	152.17	2	14 7 15.29	8 25 31.6	144.82
3	12 18 43.44	3 29 16.8	152.45	3	14 9 35.58	8 40 0.5	144.22
4	12 21 1.33	3 14 2.1	152.70	4	14 11 55.98	8 54 25.9	143.61
5	12 23 19.20	2 58 45.9	152.94	5	14 14 16.50	9 8 47.5	142.97
6	12 25 37.06	2 43 28.2	153.16	6	14 16 37.13	9 23 5.3	142.32
7	12 27 54.90	2 28 9.3	153.37	7	14 18 57.88	9 37 19.2	141.65
8	12 30 12.75	2 12 49.0	153.55	8	14 21 18.75	9 51 29.2	140.97
9	12 32 30.58	1 57 27.7	153.72	9	14 23 39.74	10 5 35.0	140.26
10	12 34 48.42	1 42 5.4	153.87	10	14 26 0.86	10 19 36.5	139.54
11	12 37 6.26	1 26 42.2	154.00	11	14 28 22.10	10 33 33.8	138.81
12	12 39 24.10	1 11 18.1	154.12	12	14 30 43.46	10 47 26.6	138.04
13	12 41 41.95	0 55 53.4	154.22	13	14 33 4.95	11 1 14.9	137.27
14	12 43 59.82	0 40 28.1	154.29	14	14 35 26.56	11 14 58.5	136.49
15	12 46 17.70	0 25 2.4	154.35	15	14 37 48.31	11 28 37.4	135.68
16	12 48 35.60	N. 0 9 36.3	154.39	16	14 40 10.18	11 42 11.5	134.86
17	12 50 53.51	S. 0 5 50.1	154.42	17	14 42 32.19	11 55 40.7	134.02
18	12 53 11.45	0 21 16.6	154.42	18	14 44 54.32	12 9 4.8	133.17
19	12 55 29.42	0 36 43.1	154.41	19	14 47 16.59	12 22 23.9	132.30
20	12 57 47.41	0 52 9.6	154.37	20	14 49 38.99	12 35 37.7	131.42
21	13 0 5.44	1 7 35.8	154.32	21	14 52 1.53	12 48 46.2	130.52
22	13 2 23.51	1 23 1.7	154.25	22	14 54 24.19	13 1 49.3	129.61
23	13 4 41.61	S. 1 38 27.2	154.16	23	14 56 46.99	S. 13 14 46.9	128.68
TUESDAY 22.				THURSDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 6 59.75	S. 1 53 52.2	154.06	0	14 59 9.93	S. 13 27 39.0	127.73
1	13 9 17.94	2 9 16.6	153.93	1	15 1 33.01	13 40 25.4	126.77
2	13 11 36.18	2 24 40.2	153.79	2	15 3 56.23	13 53 6.0	125.80
3	13 13 54.46	2 40 2.9	153.63	3	15 6 19.58	14 5 40.8	124.81
4	13 16 12.80	2 55 24.7	153.44	4	15 8 43.06	14 18 9.7	123.80
5	13 18 31.20	3 10 45.3	153.24	5	15 11 6.68	14 30 32.5	122.78
6	13 20 49.66	3 26 4.8	153.02	6	15 13 30.43	14 42 49.2	121.75
7	13 23 8.18	3 41 22.9	152.79	7	15 15 54.31	14 54 59.6	120.70
8	13 25 26.76	3 56 39.7	152.53	8	15 18 18.32	15 7 3.8	119.64
9	13 27 45.41	4 11 54.8	152.26	9	15 20 42.46	15 19 1.7	118.56
10	13 30 4.13	4 27 8.4	151.97	10	15 23 6.73	15 30 53.0	117.47
11	13 32 22.92	4 42 20.2	151.65	11	15 25 31.12	15 42 37.9	116.37
12	13 34 41.79	4 57 30.1	151.32	12	15 27 55.64	15 54 16.1	115.25
13	13 37 0.74	5 12 38.0	150.97	13	15 30 20.32	16 5 47.6	114.12
14	13 39 19.76	5 27 43.8	150.60	14	15 32 45.12	16 17 12.3	112.98
15	13 41 38.87	5 42 47.5	150.22	15	15 35 10.05	16 28 30.2	111.82
16	13 43 58.07	5 57 48.8	149.82	16	15 37 35.11	16 39 41.1	110.65
17	13 46 17.36	6 12 47.7	149.40	17	15 40 0.29	16 50 45.1	109.47
18	13 48 36.74	6 27 44.1	148.96	18	15 42 25.60	17 1 41.9	108.28
19	13 50 56.21	6 42 37.8	148.50	19	15 44 51.03	17 12 31.6	107.08
20	13 53 15.77	6 57 28.8	148.03	20	15 47 16.58	17 23 14.1	105.86
21	13 55 35.43	7 12 17.0	147.54	21	15 49 42.25	17 33 49.3	104.64
22	13 57 55.20	7 27 2.2	147.03	22	15 52 8.04	17 44 17.1	103.40
23	14 0 15.06	7 41 44.4	146.50	23	15 54 33.94	17 54 37.5	102.15
24	14 2 35.03	S. 7 56 23.4		24	15 56 59.95	S. 18 4 50.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 25.				SUNDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 56 59.95	S. 18 4 50.4	100.89	0	17 54 57.39	S. 23 32 41.0	32.50
1	15 59 26.07	18 14 55.7	99.62	1	17 57 24.55	23 35 56.0	31.02
2	16 1 52.30	18 24 53.4	98.34	2	17 59 51.62	23 39 2.1	29.53
3	16 4 18.64	18 34 43.5	97.05	3	18 2 18.58	23 41 59.3	28.05
4	16 6 45.08	18 44 25.8	95.75	4	18 4 45.45	23 44 47.5	26.57
5	16 9 11.62	18 54 0.2	94.44	5	18 7 12.20	23 47 26.9	25.09
6	16 11 38.25	19 3 26.9	93.12	6	18 9 38.84	23 49 57.5	23.61
7	16 14 4.99	19 12 45.6	91.79	7	18 12 5.36	23 52 19.1	22.14
8	16 16 31.81	19 21 56.3	90.45	8	18 14 31.76	23 54 31.9	20.67
9	16 18 58.72	19 30 59.0	89.11	9	18 16 58.03	23 56 35.9	19.20
10	16 21 25.72	19 39 53.7	87.75	10	18 19 24.16	23 58 31.1	17.73
11	16 23 52.81	19 48 40.2	86.39	11	18 21 50.16	24 0 17.5	16.27
12	16 26 19.97	19 57 18.5	85.02	12	18 24 16.01	24 1 55.1	14.81
13	16 28 47.22	20 5 48.6	83.64	13	18 26 41.71	24 3 24.0	13.36
14	16 31 14.53	20 14 10.4	82.25	14	18 29 7.26	24 4 44.1	11.91
15	16 33 41.92	20 22 23.9	80.86	15	18 31 32.64	24 5 55.6	10.46
16	16 36 9.38	20 30 29.1	79.46	16	18 33 57.87	24 6 58.3	9.02
17	16 38 36.89	20 38 25.8	78.05	17	18 36 22.92	24 7 52.5	7.59
18	16 41 4.47	20 46 14.2	76.64	18	18 38 47.80	24 8 38.0	6.16
19	16 43 32.10	20 53 54.0	75.22	19	18 41 12.51	24 9 14.9	4.73
20	16 45 59.78	21 1 25.3	73.79	20	18 43 37.03	24 9 43.3	3.31
21	16 48 27.51	21 8 48.1	72.36	21	18 46 1.36	24 10 3.2	1.90
22	16 50 55.28	21 16 2.2	70.93	22	18 48 25.51	24 10 14.5	0.49
23	16 53 23.09	S. 21 23 7.8	69.48	23	18 50 49.45	S. 24 10 17.4	0.92
SATURDAY 26.				MONDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 55 50.93	S. 21 30 4.7	68.04	0	18 53 13.20	S. 24 10 11.9	2.31
1	16 58 18.80	21 36 52.9	66.58	1	18 55 36.74	24 9 58.1	3.70
2	17 0 46.70	21 43 32.4	65.13	2	18 58 0.08	24 9 35.8	5.09
3	17 3 14.62	21 50 3.2	63.67	3	19 0 23.20	24 9 5.3	6.47
4	17 5 42.55	21 56 25.2	62.20	4	19 2 46.10	24 8 26.5	7.84
5	17 8 10.50	22 2 38.4	60.74	5	19 5 8.78	24 7 39.4	9.20
6	17 10 38.46	22 8 42.9	59.27	6	19 7 31.24	24 6 44.2	10.56
7	17 13 6.41	22 14 38.4	57.79	7	19 9 53.47	24 5 40.8	11.91
8	17 15 34.37	22 20 25.2	56.32	8	19 12 15.46	24 4 29.4	13.26
9	17 18 2.32	22 26 3.1	54.84	9	19 14 37.22	24 3 9.8	14.60
10	17 20 30.26	22 31 32.1	53.35	10	19 16 58.74	24 1 42.2	15.93
11	17 22 58.18	22 36 52.2	51.87	11	19 19 20.01	24 0 6.7	17.25
12	17 25 26.08	22 42 3.4	50.38	12	19 21 41.03	23 58 23.2	18.57
13	17 27 53.96	22 47 5.7	48.89	13	19 24 1.80	23 56 31.8	19.87
14	17 30 21.80	22 51 59.1	47.41	14	19 26 22.32	23 54 32.5	21.17
15	17 32 49.61	22 56 43.5	45.92	15	19 28 42.58	23 52 25.5	22.47
16	17 35 17.37	23 1 19.0	44.43	16	19 31 2.57	23 50 10.7	23.75
17	17 37 45.09	23 5 45.6	42.93	17	19 33 22.30	23 47 48.2	25.03
18	17 40 12.76	23 10 3.2	41.44	18	19 35 41.77	23 45 18.0	26.29
19	17 42 40.37	23 14 11.8	39.95	19	19 38 0.97	23 42 40.3	27.55
20	17 45 7.92	23 18 11.6	38.46	20	19 40 19.89	23 39 55.0	28.80
21	17 47 35.40	23 22 2.3	36.97	21	19 42 38.54	23 37 2.1	30.05
22	17 50 2.81	23 25 44.1	35.48	22	19 44 56.91	23 34 1.9	31.28
23	17 52 30.14	23 29 17.0	33.99	23	19 47 15.00	23 30 54.2	32.51
24	17 54 57.39	S. 23 32 41.0		24	19 49 32.81	S. 23 27 39.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 29.				WEDNESDAY 30.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	19 49 32.81	S. 23 27 39.1	33.72	0	20 43 10.99	S. 21 35 11.9	60.22
1	19 51 50.33	23 24 16.8	34.93	1	20 45 21.25	21 29 10.5	61.21
2	19 54 7.57	23 20 47.2	36.13	2	20 47 31.19	21 23 3.3	62.18
3	19 56 24.52	23 17 10.4	37.32	3	20 49 40.83	21 16 50.2	63.15
4	19 58 41.18	23 13 26.5	38.50	4	20 51 50.16	21 10 31.3	64.11
5	20 0 57.54	23 9 35.5	39.68	5	20 53 59.17	21 4 6.6	65.06
6	20 3 13.61	23 5 37.4	40.84	6	20 56 7.87	20 57 36.2	66.01
7	20 5 29.38	23 1 32.4	41.99	7	20 58 16.27	20 51 0.2	66.94
8	20 7 44.86	22 57 20.4	43.14	8	21 0 24.36	20 44 18.5	67.86
9	20 10 0.03	22 53 1.6	44.28	9	21 2 32.13	20 37 31.4	68.77
10	20 12 14.91	22 48 35.9	45.40	10	21 4 39.60	20 30 38.7	69.68
11	20 14 29.48	22 44 3.5	46.52	11	21 6 46.77	20 23 40.7	70.57
12	20 16 43.75	22 39 24.3	47.63	12	21 8 53.62	20 16 37.2	71.45
13	20 18 57.71	22 34 38.6	48.73	13	21 11 0.17	20 9 28.5	72.33
14	20 21 11.37	22 29 46.2	49.82	14	21 13 6.41	20 2 14.5	73.20
15	20 23 24.72	22 24 47.3	50.90	15	21 15 12.35	19 54 55.3	74.06
16	20 25 37.77	22 19 41.9	51.97	16	21 17 17.99	19 47 31.0	74.91
17	20 27 50.50	22 14 30.1	53.03	17	21 19 23.33	19 40 1.6	75.75
18	20 30 2.93	22 9 11.9	54.09	18	21 21 28.37	19 32 27.1	76.58
19	20 32 15.05	22 3 47.4	55.13	19	21 23 33.10	19 24 47.6	77.40
20	20 34 26.86	21 58 16.6	56.17	20	21 25 37.55	19 17 3.2	78.22
21	20 36 38.36	21 52 39.6	57.19	21	21 27 41.69	19 9 13.9	79.02
22	20 38 49.55	21 46 56.4	58.21	22	21 29 45.54	19 1 19.7	79.82
23	20 41 0.42	21 41 7.2	59.22	23	21 31 49.10	18 53 20.8	80.61
24	20 43 10.99	S. 21 35 11.9		24	21 33 52.37	S. 18 45 17.1	

PHASES OF THE MOON.

● New Moon.....	^d ^h ^m
☾ First Quarter.....	8 16 42.2
○ Full Moon.....	16 12 18.1
☾ Last Quarter.....	23 2 35.7
	30 4 31.4

☾ Apogee.....	^d ^h
☾ Perigee.....	6 20
	21 22

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
			° ' "		° ' "		° ' "		° ' "	
1	Saturn	W.	99 21 10	2774	100 56 12	2788	102 30 56	2802	104 5 21	2815
	Spica η	W.	84 50 32	2828	86 24 24	2841	87 57 59	2855	89 31 15	2869
	Antares	W.	39 2 17	2866	40 35 20	2876	42 8 10	2886	43 40 47	2896
	Mars	E.	44 24 1	3087	42 55 35	3102	41 27 28	3118	39 59 40	3134
	Fomalhaut	E.	48 9 29	3154	46 42 25	3188	45 16 1	3223	43 50 19	3260
Sun	E.	84 51 55	3168	83 25 7	3184	81 58 39	3199	80 32 28	3214	
2	Saturn	W.	111 53 15	2877	113 26 3	2888	114 58 37	2900	116 30 56	2910
	Spica η	W.	97 13 26	2931	98 45 5	2943	100 16 30	2954	101 47 41	2965
	Antares	W.	51 20 40	2946	52 52 1	2955	54 23 10	2964	55 54 8	2973
	Mars	E.	32 45 16	3207	31 19 15	3221	29 53 31	3236	28 28 4	3249
	Sun	E.	73 25 47	3282	72 1 14	3294	70 36 55	3307	69 12 51	3318
3	Spica η	W.	109 20 19	3014	110 50 15	3023	112 19 59	3031	113 49 34	3040
	Antares	W.	63 26 14	3014	64 56 9	3022	66 25 55	3028	67 55 33	3035
	Mars	E.	21 24 58	3323	20 1 13	3339	- - -	- - -	- - -	- - -
	Sun	E.	62 15 42	3370	60 52 51	3379	59 30 11	3388	58 7 41	3398
4	Antares	W.	75 21 44	3064	76 50 38	3069	78 19 26	3074	79 48 8	3078
	Sun	E.	51 17 32	3436	49 55 56	3441	48 34 26	3448	47 13 4	3455
5	Antares	W.	87 10 28	3095	88 38 44	3097	90 6 57	3100	91 35 7	3101
	Sun	E.	40 27 52	3482	39 7 8	3487	37 46 29	3491	36 25 55	3497
6	Antares	W.	98 55 26	3108	100 23 26	3109	101 51 24	3110	103 19 22	3110
	Sun	E.	29 44 31	3524	28 24 33	3529	27 4 41	3535	25 44 56	3543
10	Aldebaran	E.	32 53 54	3031	31 24 19	3029	29 54 42	3026	28 25 2	3026
	Pollux	E.	77 3 59	3016	75 34 6	3011	74 4 7	3006	72 34 1	3002
	Regulus	E.	113 1 18	3010	111 31 18	3006	110 1 13	3001	108 31 2	2995
11	Sun	W.	25 39 53	3398	27 2 12	3383	28 24 48	3371	29 47 38	3358
	Aldebaran	E.	20 56 28	3029	19 26 51	3035	17 57 21	3043	16 28 2	3057
	Pollux	E.	65 1 56	2974	63 31 10	2968	62 0 17	2962	60 29 16	2955
	Regulus	E.	100 58 13	2965	99 27 17	2958	97 56 12	2952	96 24 59	2945
12	Sun	W.	36 45 17	3300	38 9 29	3289	39 33 53	3278	40 58 30	3268
	Pollux	E.	52 52 12	2924	51 20 23	2916	49 48 25	2909	48 16 18	2902
	Regulus	E.	88 46 41	2909	87 14 34	2901	85 42 17	2893	84 9 49	2885
	Saturn	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
13	Sun	W.	48 4 47	3212	49 30 42	3200	50 56 51	3188	52 23 14	3177
	Pollux	E.	40 33 30	2868	39 0 30	2860	37 27 20	2854	35 54 2	2847
	Regulus	E.	76 24 50	2842	74 51 16	2832	73 17 30	2823	71 43 32	2813
	Saturn	E.	115 7 9	2810	113 32 54	2801	111 58 27	2791	110 23 47	2782
14	Sun	W.	59 38 41	3115	61 6 32	3103	62 34 38	3090	64 3 0	3077
	Aldebaran	W.	16 57 46	2845	18 31 16	2818	20 5 20	2795	21 39 54	2775
	Pollux	E.	28 5 32	2822	26 31 33	2818	24 57 28	2815	23 23 20	2815
	Regulus	E.	63 50 26	2761	62 15 7	2751	60 39 35	2739	59 3 47	2729
	Saturn	E.	102 27 8	2729	100 51 6	2717	99 14 49	2705	97 38 16	2694
	Spica η	E.	117 48 9	2786	116 13 23	2775	114 38 22	2762	113 3 4	2749
15	Sun	W.	71 28 58	3007	72 59 2	2993	74 29 24	2978	76 0 4	2964
	Aldebaran	W.	29 39 2	2687	31 16 0	2670	32 53 20	2654	34 31 2	2639

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
1	Saturn W.	105 39 29	2828	107 13 20	2841	108 46 54	2854	110 20 12	2866
	Spica ♈ W.	91 4 14	2882	92 36 56	2894	94 9 22	2907	95 41 32	2920
	Antares W.	45 13 11	2905	46 45 23	2916	48 17 21	2926	49 49 7	2936
	Mars E.	38 32 12	3148	37 5 1	3164	35 38 9	3178	34 11 34	3193
	Fomalhaut E.	42 25 21	3299	41 1 8	3340	39 37 43	3385	38 15 9	3433
	SUN E.	79 6 35	3228	77 40 59	3242	76 15 39	3255	74 50 35	3269
2	Saturn W.	118 3 2	2920	119 34 55	2930	- - -	- - -	- - -	- - -
	Spica ♈ W.	103 18 38	2975	104 49 22	2985	106 19 53	2995	107 50 12	3005
	Antares W.	57 24 54	2981	58 55 30	2991	60 25 54	2998	61 56 9	3006
	Mars E.	27 2 53	3264	25 37 59	3277	24 13 21	3293	22 49 1	3307
	SUN E.	67 49 0	3329	66 25 22	3340	65 1 57	3350	63 38 43	3361
3	Spica ♈ W.	115 18 57	3047	116 48 12	3055	118 17 17	3062	119 46 13	3069
	Antares W.	69 25 2	3042	70 54 23	3048	72 23 37	3053	73 52 44	3059
	Mars E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	56 45 22	3405	55 23 11	3414	54 1 10	3421	52 39 17	3428
4	Antares W.	81 16 45	3082	82 45 17	3085	84 13 45	3089	85 42 8	3092
	SUN E.	45 51 49	3461	44 30 41	3465	43 9 38	3471	41 48 42	3477
5	Antares W.	93 3 15	3104	94 31 20	3105	95 59 24	3106	97 27 26	3108
	SUN E.	35 5 27	3502	33 45 5	3507	32 24 48	3512	31 4 37	3517
6	Antares W.	104 47 20	3110	106 15 17	3110	107 43 14	3110	109 11 12	3110
	SUN E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
10	Aldebaran E.	26 55 20	3025	25 25 38	3023	23 55 54	3023	22 26 10	3025
	Pollux E.	71 3 50	2996	69 33 32	2990	68 3 7	2985	66 32 35	2979
	Regulus E.	107 0 43	2989	105 30 17	2983	103 59 43	2977	102 29 2	2971
11	SUN W.	31 10 43	3346	32 34 1	3333	33 57 34	3323	35 21 19	3312
	Aldebaran E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux E.	58 58 7	2950	57 26 51	2943	55 55 26	2936	54 23 53	2930
	Regulus E.	94 53 37	2938	93 22 7	2931	91 50 28	2924	90 18 39	2916
12	SUN W.	42 23 19	3256	43 48 22	3246	45 13 37	3235	46 39 5	3223
	Pollux E.	46 44 2	2896	45 11 38	2888	43 39 4	2882	42 6 22	2874
	Regulus E.	82 37 11	2877	81 4 22	2869	79 31 23	2859	77 58 12	2851
	Saturn E.	121 22 10	2846	119 48 42	2837	118 15 2	2829	116 41 12	2819
13	SUN W.	53 49 50	3165	55 16 41	3153	56 43 46	3141	58 11 6	3129
	Pollux E.	34 20 35	2842	32 47 1	2835	31 13 18	2829	29 39 28	2825
	Regulus E.	70 9 21	2803	68 34 57	2793	67 0 20	2783	65 25 30	2772
	Saturn E.	108 48 55	2771	107 13 49	2760	105 38 29	2750	104 2 56	2739
14	SUN W.	65 31 38	3063	67 0 33	3050	68 29 44	3035	69 59 13	3022
	Aldebaran W.	23 14 55	2756	24 50 21	2737	26 26 12	2719	28 2 26	2703
	Pollux E.	21 49 12	2820	20 15 10	2828	18 41 19	2840	17 7 43	2857
	Regulus E.	57 27 45	2717	55 51 27	2705	54 14 54	2693	52 38 5	2682
	Saturn E.	96 1 28	2682	94 24 24	2670	92 47 4	2658	91 9 27	2645
	Spica ♈ E.	111 27 29	2737	109 51 38	2724	108 15 30	2711	106 39 4	2698
15	SUN W.	77 31 2	2948	79 2 20	2934	80 33 56	2918	82 5 52	2902
	Aldebaran W.	36 9 4	2623	37 47 28	2608	39 26 12	2592	41 5 18	2576

MEAN TIME.											
LUNAR DISTANCES.											
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.		
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]			
15	Regulus E.	51 1 1	2669	49 23 40	2657	47 46 2	2645	46 8 8	2632		
	Saturn E.	89 31 33	2632	87 53 22	2620	86 14 54	2606	84 36 7	2593		
	Spica π E.	105 2 22	2684	103 25 21	2671	101 48 2	2657	100 10 24	2643		
16	SUN W.	83 38 8	2887	85 10 44	2871	86 43 40	2856	88 16 56	2839		
	Aldebaran W.	42 44 46	2561	44 24 34	2545	46 4 45	2530	47 45 17	2515		
	Regulus E.	37 54 24	2571	36 14 49	2558	34 34 56	2546	32 54 47	2534		
	Saturn E.	76 17 36	2523	74 36 55	2510	72 55 55	2495	71 14 34	2481		
	Spica π E.	91 57 34	2572	90 18 1	2559	88 38 9	2543	86 57 56	2529		
17	SUN W.	96 8 32	2757	97 43 56	2741	99 19 41	2726	100 55 47	2708		
	Aldebaran W.	56 13 23	2436	57 56 7	2420	59 39 13	2404	61 22 42	2389		
	Regulus E.	24 30 15	2487	22 48 43	2481	21 7 3	2478	19 25 19	247		
	Saturn E.	62 42 43	2406	60 59 17	2391	59 15 30	2376	57 31 21	236		
	Spica π E.	78 31 45	2455	76 49 29	2440	75 6 51	2425	73 23 52	2411		
	Antares E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -		
18	SUN W.	109 1 47	2628	110 40 4	2613	112 18 42	2596	113 57 42	2581		
	Aldebaran W.	70 5 39	2312	71 51 21	2297	73 37 25	2281	75 23 52	2267		
	Pollux W.	26 8 51	2374	27 53 3	2352	29 37 47	2330	31 23 3	2311		
	Saturn E.	48 45 14	2288	46 58 57	2273	45 12 18	2259	43 25 18	2245		
	Spica π E.	64 43 49	2340	62 58 47	2326	61 13 25	2312	59 27 43	2299		
	Antares E.	110 37 44	2332	108 52 31	2317	107 6 57	2301	105 20 59	2287		
19	Aldebaran W.	84 21 24	2197	86 9 56	2183	87 58 49	2170	89 48 1	2158		
	Pollux W.	40 16 14	2222	42 4 9	2206	43 52 27	2192	45 41 7	2177		
	Saturn E.	34 25 17	2180	32 36 19	2168	30 47 3	2157	28 57 30	2146		
	Spica π E.	50 34 37	2240	48 47 9	2229	46 59 25	2220	45 11 27	2211		
	Antares E.	96 25 47	2215	94 37 42	2202	92 49 18	2188	91 0 33	2176		
20	Aldebaran W.	98 58 32	2102	100 49 28	2092	102 40 40	2083	104 32 6	2074		
	Pollux W.	54 49 34	2115	56 40 11	2103	58 31 5	2093	60 22 15	2084		
	Regulus W.	19 1 21	2181	20 50 18	2157	22 39 50	2137	24 29 53	2120		
	Saturn E.	19 46 13	2109	17 55 28	2106	- - -	- - -	- - -	- - -		
	Spica π E.	36 8 52	2185	34 20 2	2183	32 31 9	2184	30 42 17	2188		
	Antares E.	81 52 20	2120	80 1 51	2111	78 11 8	2102	76 20 11	2094		
21	Aldebaran W.	113 52 18	2039	115 44 51	2035	117 37 31	2030	119 30 18	2026		
	Pollux W.	69 41 25	2046	71 33 48	2039	73 26 21	2035	75 19 1	2030		
	Regulus W.	33 45 44	2060	35 37 45	2052	37 29 58	2045	39 22 22	2039		
	Antares E.	67 2 32	2061	65 10 33	2056	63 18 26	2053	61 26 15	2050		
	α Aquilæ E.	111 43 6	2862	110 9 58	2837	108 36 18	2815	107 2 10	2795		
22	Pollux W.	84 43 37	2021	86 36 39	2020	88 29 42	2022	90 22 42	2024		
	Regulus W.	48 46 12	2023	50 39 10	2023	52 32 9	2023	54 25 7	2024		
	Saturn W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -		
	Antares E.	52 4 39	2050	50 12 23	2053	48 20 11	2056	46 28 4	2062		
	α Aquilæ E.	99 6 3	2732	97 30 6	2726	95 54 1	2722	94 17 51	2721		
23	Pollux W.	99 46 26	2044	101 39 1	2051	103 31 16	2058	105 23 20	2066		
	Regulus W.	63 49 8	2042	65 41 37	2048	67 33 57	2054	69 26 7	2062		
	Saturn W.	25 46 58	2030	27 39 46	2034	29 32 28	2039	31 25 2	2045		
	Antares E.	37 10 8	2107	35 19 19	2120	33 28 50	2135	31 38 44	2153		

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
			° ' "		° ' "		° ' "		° ' "	
5	Regulus	E.	44 29 57	2620	42 51 29	2608	41 12 45	2595	39 33 43	2583
	Saturn	E.	82 57 2	2580	81 17 39	2566	79 37 57	2552	77 57 56	2538
	Spica $\pi\gamma$	E.	98 32 28	2629	96 54 13	2616	95 15 40	2601	93 36 46	2588
6	SUN	W.	89 50 33	2823	91 24 31	2807	92 58 50	2791	94 33 30	2774
	Aldebaran	W.	49 26 10	2499	51 7 25	2482	52 49 3	2467	54 31 2	2452
	Regulus	E.	31 14 21	2524	29 33 41	2513	27 52 46	2503	26 11 37	2494
	Saturn	E.	69 32 54	2465	67 50 52	2451	66 8 30	2436	64 25 47	2422
	Spica $\pi\gamma$	E.	85 17 23	2515	83 36 30	2500	81 55 16	2485	80 13 41	2470
7	SUN	W.	102 32 16	2692	104 9 6	2676	105 46 18	2660	107 23 51	2643
	Aldebaran	W.	63 6 32	2373	64 50 45	2357	66 35 21	2342	68 20 19	2327
	Regulus	E.	- - -	-	- - -	-	- - -	-	- - -	-
	Saturn	E.	55 46 50	2347	54 1 59	2331	52 16 45	2317	50 31 11	2302
	Spica $\pi\gamma$	E.	71 40 33	2396	69 56 53	2382	68 12 52	2368	66 28 31	2353
8	Antares	E.	117 34 42	2396	115 51 2	2381	114 7 0	2364	112 22 33	2348
	SUN	W.	115 37 3	2566	117 16 45	2551	118 56 47	2537	120 37 9	2522
	Aldebaran	W.	77 10 40	2253	78 57 49	2238	80 45 20	2224	82 33 12	2211
	Pollux	W.	33 8 46	2291	34 54 59	2272	36 41 39	2255	38 28 44	2239
	Saturn	E.	41 37 58	2281	39 50 17	2218	38 2 16	2205	36 13 56	2192
19	Spica $\pi\gamma$	E.	57 41 42	2286	55 55 22	2274	54 8 45	2262	52 21 49	2251
	Antares	E.	103 34 40	2272	101 47 59	2257	100 0 56	2243	98 13 32	2229
	Aldebaran	W.	91 37 32	2146	93 27 21	2135	95 17 27	2123	97 7 51	2112
	Pollux	W.	47 30 9	2164	49 19 31	2151	51 9 13	2138	52 59 14	2126
	Saturn	E.	27 7 41	2136	25 17 37	2128	23 27 20	2120	21 36 51	2114
20	Spica $\pi\gamma$	E.	43 23 16	2204	41 34 54	2196	39 46 21	2191	37 57 40	2186
	Antares	E.	89 11 29	2165	87 22 8	2152	85 32 28	2141	83 42 32	2131
	Aldebaran	W.	106 23 45	2066	108 15 37	2059	110 7 40	2052	111 59 54	2045
	Pollux	W.	62 13 39	2075	64 5 17	2066	65 57 8	2059	67 49 11	2052
	Regulus	W.	26 20 22	2104	28 11 15	2091	30 2 28	2079	31 53 59	2070
21	Saturn	E.	- - -	-	- - -	-	- - -	-	- - -	-
	Spica $\pi\gamma$	E.	28 53 31	2195	27 4 56	2206	25 16 38	2223	23 28 45	2246
	Antares	E.	74 29 2	2085	72 37 40	2078	70 46 7	2072	68 54 24	2066
	Aldebaran	W.	- - -	-	- - -	-	- - -	-	- - -	-
	Pollux	W.	77 11 48	2027	79 4 40	2025	80 57 36	2022	82 50 36	2021
22	Regulus	W.	41 14 55	2034	43 7 36	2030	45 0 23	2026	46 53 16	2024
	Antares	E.	59 33 59	2048	57 41 40	2047	55 49 19	2048	53 56 59	2048
	α Aquilæ	E.	105 27 36	2779	103 52 40	2763	102 17 23	2751	100 41 50	2739
	Pollux	W.	92 15 39	2026	94 8 32	2030	96 1 20	2034	97 54 2	2039
	Regulus	W.	56 18 4	2026	58 10 58	2029	60 3 47	2032	61 56 31	2037
23	Saturn	W.	18 15 25	2028	20 8 15	2025	22 1 10	2025	23 54 5	2026
	Antares	E.	44 36 6	2068	42 44 17	2075	40 52 40	2084	39 1 16	2094
	α Aquilæ	E.	92 41 39	2721	91 5 27	2723	89 29 18	2728	87 53 16	2735
	Pollux	W.	107 15 12	2074	109 6 51	2084	110 58 15	2094	112 49 23	2104
	Regulus	W.	71 18 5	2070	73 9 51	2079	75 1 23	2088	76 52 41	2098
23	Saturn	W.	33 17 26	2052	35 9 39	2060	37 1 40	2069	38 53 27	2078
	Antares	E.	29 49 6	2174	27 59 59	2198	26 11 29	2227	24 23 41	2260

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	IX ^b .	P.L. of diff.
23	α Aquilæ E.	86 17 22	2744	84 41 40	2734	83 6 12	2767	81 31 1	2782
	Fomalhaut E.	119 39 59	2272	117 53 18	2270	116 6 34	2269	114 19 49	2270
24	Regulus W.	78 43 43	2109	80 34 29	2120	82 24 57	2132	84 15 7	2145
	Saturn W.	40 45 0	2089	42 36 16	2100	44 27 16	2111	46 17 58	2123
	Spica π g W.	25 18 36	2255	27 5 42	2248	28 52 58	2246	30 40 17	2248
	α Aquilæ E.	73 40 52	2889	72 8 19	2917	70 36 22	2948	69 5 4	2941
	Fomalhaut E.	105 27 6	2295	103 40 59	2304	101 55 5	2313	100 9 24	2323
	Mars E.	122 21 10	2343	120 36 13	2355	118 51 33	2367	117 7 11	2380
25	Regulus W.	93 20 52	2217	95 8 55	2233	96 56 34	2248	98 43 50	2264
	Saturn W.	55 26 33	2192	57 15 12	2208	59 3 27	2225	60 51 18	2241
	Spica π g W.	39 35 42	2278	41 22 14	2288	43 8 31	2300	44 54 30	2313
	Fomalhaut E.	91 25 14	2389	89 41 24	2405	87 57 56	2421	86 14 52	2438
	α Pegasi E.	108 14 46	2660	106 37 12	2667	104 59 48	2676	103 22 36	2686
	Mars E.	108 30 17	2455	106 48 0	2470	105 6 5	2487	103 24 34	2505
26	Regulus W.	107 33 55	2352	109 18 39	2371	111 2 56	2389	112 46 46	2408
	Saturn W.	69 44 26	2326	71 29 48	2344	73 14 44	2362	74 59 13	2380
	Spica π g W.	53 39 29	2387	55 23 23	2402	57 6 55	2419	58 50 2	2436
	Fomalhaut E.	77 45 52	2534	76 5 26	2555	74 25 29	2577	72 46 2	2593
	Mars E.	95 3 8	2596	93 24 7	2615	91 45 33	2634	90 7 24	2654
	α Pegasi E.	95 20 27	2753	93 44 57	2770	92 9 50	2787	90 35 5	2805
27	Saturn W.	83 35 5	2473	85 16 56	2492	86 58 20	2511	88 39 18	2529
	Spica π g W.	67 19 35	2523	69 0 16	2542	70 40 31	2560	72 20 21	2578
	Antares W.	21 49 58	2675	23 27 12	2669	25 4 33	2669	26 41 55	2672
	Fomalhaut E.	64 36 33	2718	63 0 17	2744	61 24 36	2770	59 49 29	2797
	Mars E.	82 3 18	2753	80 27 48	2772	78 52 44	2793	77 18 7	2812
	α Pegasi E.	82 47 34	2908	81 15 25	2930	79 43 44	2954	78 12 33	2978
	SUN E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
28	Saturn W.	96 57 47	2621	98 36 14	2638	100 14 17	2656	101 51 56	2674
	Spica π g W.	80 33 22	2667	82 10 46	2685	83 47 46	2702	85 24 23	2720
	Antares W.	34 46 44	2716	36 23 3	2728	37 59 6	2741	39 34 52	2753
	Fomalhaut E.	52 3 2	2945	50 31 40	2978	49 1 0	3011	47 31 1	3047
	Mars E.	69 31 26	2910	67 59 20	2931	66 27 40	2949	64 56 23	2968
	α Pegasi E.	70 44 21	3108	69 16 21	3135	67 48 54	3164	66 22 2	3194
	SUN E.	115 33 15	2985	114 2 43	3004	112 32 35	3022	111 2 49	3041
29	Saturn W.	109 54 24	2758	111 29 47	2772	113 4 51	2789	114 39 33	2804
	Spica π g W.	93 21 47	2804	94 56 10	2818	96 30 14	2835	98 3 57	2850
	Antares W.	47 29 23	2821	49 3 24	2835	50 37 7	2847	52 10 34	2861
	Fomalhaut E.	40 12 47	3255	38 47 43	3306	37 23 38	3359	36 0 35	3417
	Mars E.	57 25 46	3059	55 56 46	3075	54 28 6	3092	52 59 47	3110
	SUN E.	103 39 41	3129	102 12 7	3147	100 44 54	3163	99 18 0	3179
30	Spica π g W.	105 47 44	2922	107 19 35	2935	108 51 10	2947	110 22 29	2961
	Antares W.	59 53 35	2924	61 25 24	2935	62 56 58	2946	64 28 18	2958
	Mars E.	45 43 6	3187	44 16 41	3202	42 50 34	3215	41 24 43	3230
	SUN E.	92 8 13	3253	90 43 7	3268	89 18 18	3281	87 53 44	3294

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		[°] ['] ["]		[°] ['] ["]		[°] ['] ["]		[°] ['] ["]	
23	α Aquilæ E.	79 56 10	2798	78 21 40	2818	76 47 36	2839	75 13 59	2863
	Fomalhaut E.	112 33 6	2272	110 46 26	2276	108 59 51	2281	107 13 24	2287
24	Regulus W.	86 4 57	2158	87 54 28	2172	89 43 38	2186	91 32 26	2201
	Saturn W.	48 8 22	2136	49 58 26	2149	51 48 10	2164	53 37 32	2178
	Spica π W.	32 27 33	2248	34 14 49	2253	36 1 57	2260	37 48 56	2268
	α Aquilæ E.	67 34 28	3017	66 4 37	3056	64 35 33	3099	63 7 22	3143
	Fomalhaut E.	98 23 58	2335	96 38 49	2347	94 53 58	2360	93 9 26	2374
	Mars E.	115 23 7	2394	113 39 23	2408	111 56 0	2423	110 12 58	2438
25	Regulus W.	100 30 42	2281	102 17 9	2300	104 3 9	2317	105 48 44	2333
	Saturn W.	62 38 45	2257	64 25 48	2274	66 12 26	2291	67 58 39	2309
	Spica π W.	46 40 10	2326	48 25 31	2340	50 10 32	2355	51 55 12	2371
	Fomalhaut E.	84 32 12	2456	82 49 57	2475	81 8 8	2494	79 26 46	2514
	α Pegasi E.	101 45 37	2697	100 8 53	2710	98 32 26	2723	96 56 17	2738
	Mars E.	101 43 27	2522	100 2 45	2540	98 22 27	2559	96 42 35	2577
26	Regulus W.	114 30 10	2427	116 13 6	2446	117 55 36	2465	119 37 39	2484
	Saturn W.	76 43 16	2398	78 26 53	2417	80 10 4	2436	81 52 47	2454
	Spica π W.	60 32 46	2453	62 15 5	2470	63 57 0	2488	65 38 30	2506
	Fomalhaut E.	71 7 5	2621	69 28 39	2645	67 50 45	2668	66 13 22	2693
	Mars E.	88 29 42	2673	86 52 26	2693	85 15 37	2713	83 39 14	2733
	α Pegasi E.	89 0 43	2824	87 26 47	2844	85 53 16	2864	84 20 11	2886
27	Saturn W.	90 19 51	2548	91 59 58	2567	93 39 39	2584	95 18 56	2603
	Spica π W.	73 59 46	2596	75 38 47	2614	77 17 23	2632	78 55 35	2650
	Antares W.	28 19 13	2678	29 56 23	2685	31 33 23	2694	33 10 11	2705
	Fomalhaut E.	58 14 57	2825	56 41 2	2854	55 7 44	2884	53 35 4	2913
	Mars E.	75 43 55	2833	74 10 10	2852	72 36 50	2872	71 3 55	2892
	α Pegasi E.	76 41 52	3002	75 11 41	3027	73 42 2	3054	72 12 56	3079
	SUN E.	121 39 23	2908	120 7 14	2928	118 35 30	2946	117 4 10	2966
28	Saturn W.	103 29 11	2692	105 6 2	2708	106 42 32	2726	108 18 38	2741
	Spica π W.	87 0 36	2737	88 36 27	2754	90 11 55	2770	91 47 2	2787
	Antares W.	41 10 21	2766	42 45 33	2780	44 20 27	2793	45 55 4	2807
	Fomalhaut E.	46 1 47	3084	44 33 18	3124	43 5 37	3165	41 38 46	3209
	Mars E.	63 25 30	2986	61 55 0	3005	60 24 53	3023	58 55 9	3040
	α Pegasi E.	64 55 46	3225	63 30 6	3257	62 5 4	3289	60 40 40	3323
	SUN E.	109 33 27	3060	108 4 28	3078	106 35 51	3095	105 7 35	3113
29	Saturn W.	116 13 56	2818	117 48 0	2833	119 21 45	2848	120 55 11	2863
	Spica π W.	99 37 20	2865	101 10 24	2880	102 43 9	2894	104 15 36	2909
	Antares W.	53 43 43	2874	55 16 35	2887	56 49 11	2899	58 21 31	2912
	Fomalhaut E.	- - -	-	- - -	-	- - -	-	- - -	-
	Mars E.	51 31 49	3125	50 4 10	3141	48 36 50	3157	47 9 49	3172
	SUN E.	97 51 26	3195	96 25 11	3210	94 59 14	3226	93 33 35	3240
30	Spica π W.	111 53 31	2973	113 24 18	2985	114 54 50	2996	116 25 8	3007
	Antares W.	65 59 24	2970	67 30 15	2979	69 0 54	2989	70 31 21	2999
	Mars E.	39 59 9	3244	38 33 52	3256	37 8 49	3270	35 44 2	3282
	SUN E.	86 29 25	3307	85 5 21	3319	83 41 31	3330	82 17 54	3341

CONFIGURATIONS OF THE SATELLITES OF JUPITER

At 7^h 40^m, MEAN TIME.

Days of the Month.	Apparent West.	Apparent East.
1	4. 3	2. ○
2	4. .3 1.	○
3	4. ○	1. 3 2.
4	4. 1. 2. ○	3.
5	4. .2 ○	1. 3.
6	4. .1 ○	3. 2.
7	3. 4. ○	1. 2.
8	3. 2. ○	1. ●
9	3. 1. 2 ○	4.
10	○	1. 3 2. 4.

THE SATELLITES OF JUPITER

are not visible

from the 10th day of April until the 7th day of June,

JUPITER being too near to the SUN.

This Table represents, at 7^h 40^m after *Mean Noon* of each day, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a scope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

TELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	1*	^h 7 ^m 52 ^s 54·2	^h 8 ^m 31 ^s 39·3	Em.
	3	2 21 43·3	3 7 27·1	Em.
	4	20 50 36·6	21 43 19·1	Em.
	6	15 19 24·4	16 19 5·6	Em.
	8	9 48 16·8	10 54 56·7	Em.
	10	4 17 4·5	5 30 43·1	Em.
II.	2	11 0 17·4	11 43 29·8	Em.
	6	0 18 13·5	1 15 26·6	Em.
	9	13 36 14·4	14 47 28·3	Em.
III.	2	21 20 19·5	22 5 13·8	Im.
	2	23 27 52·0	0 13 7·3	Em.
	10	3 29 31·0	4 43 1·8	Em.

THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible

from the 10th day of April until the 7th day of June,

JUPITER being too near to the SUN.



APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h m
	2 0 18		2 2 59	2 5 16	2 3 37	2 5 45
	4 18 56	In	3 21 37	3 23 54	3 22 12	3 0 20
	6 13 34	the	5 16 15	5 18 31	5 16 48	5 18 56
	8 8 11	Shadow.	7 10 52	7 13 9	7 11 24	7 13 32
	10 2 48		9 5 30	9 7 46	9 5 59	9 8 7
II.	5 21 39	In the Shadow.	4 2 50	4 5 29	4 4 36	4 6 53
	9 11 18		7 16 29	7 19 8	7 18 9	7 20 26
III.	2 19 26	2 21 52 In the Shadow.	6 9 56	6 12 22	6 12 10	6 14 18
	9 0 25					

THE SATELLITES OF JUPITER

are not visible

from the 10th day of April until the 7th day of June,

JUPITER being too near to the SUN.

Days of the Month	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^h .505048. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	-1.2621	-0.6185	-9.0287	-9.6571	23 18 42.84	9	90	.246
2	1.2604	0.6528	9.0207	9.6578	23 14 46.94	10	91	.249
3	1.2587	0.6845	9.0124	9.6580	23 10 51.03	11	92	.252
4	-1.2568	-0.7139	-9.0039	-9.6576	23 6 55.12	12	93	.255
5	1.2548	0.7414	8.9952	9.6567	23 2 59.22	13	94	.257
6	1.2526	0.7670	8.9862	9.6553	22 59 3.31	14	95	.260
7	-1.2503	-0.7911	-8.9770	-9.6534	22 55 7.40	15	96	.263
8	1.2479	0.8138	8.9675	9.6510	22 51 11.49	16	97	.266
9	1.2453	0.8352	8.9576	9.6480	22 47 15.59	17	98	.268
10	-1.2426	-0.8555	-8.9475	-9.6446	22 43 19.68	18	99	.271
11	1.2397	0.8747	8.9370	9.6407	22 39 23.77	19	100	.274
12	1.2367	0.8930	8.9261	9.6363	22 35 27.86	20	101	.277
13	-1.2335	-0.9105	-8.9149	-9.6314	22 31 31.96	21	102	.279
14	1.2302	0.9271	8.9032	9.6260	22 27 36.05	22	103	.282
15	1.2267	0.9430	8.8912	9.6201	22 23 40.14	23	104	.285
16	-1.2231	-0.9582	-8.8786	-9.6137	22 19 44.23	24	105	.287
17	1.2194	0.9727	8.8655	9.6068	22 15 48.32	25	106	.290
18	1.2154	0.9866	8.8518	9.5994	22 11 52.42	26	107	.293
19	-1.2114	-1.0000	-8.8375	-9.5916	22 7 56.51	27	108	.296
20	1.2071	1.0129	8.8226	9.5832	22 4 0.60	28	109	.298
21	1.2027	1.0252	8.8070	9.5743	22 0 4.69	29	110	.301
22	-1.1981	-1.0371	-8.7906	-9.5649	21 56 8.78	30	111	.304
23	1.1934	1.0485	8.7734	9.5549	21 52 12.88	31	112	.307
24	1.1884	1.0595	8.7553	9.5445	21 48 16.97	32	113	.309
25	-1.1833	-1.0701	-8.7362	-9.5335	21 44 21.06	33	114	.312
26	1.1780	1.0804	8.7160	9.5219	21 40 25.15	34	115	.315
27	1.1724	1.0905	8.6946	9.5098	21 36 29.24	35	116	.318
28	-1.1668	-1.0998	-8.6717	-9.4971	21 32 33.33	36	117	.320
29	1.1610	1.1090	8.6473	9.4838	21 28 37.42	37	118	.323
30	1.1549	1.1178	8.6212	9.4699	21 24 41.52	38	119	.326
31	-1.1486	-1.1264	-8.5931	-9.4555	21 20 45.61	39	120	.329

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Thur.	1	2 32 40.32	9.543	N. 15 0 48.0	45.20	1 5.96	3 3.17	0.312
Frid.	2	2 36 29.36	9.566	15 18 52.8	44.57	1 6.04	3 10.66	0.290
Sat.	3	2 40 18.95	9.590	15 36 42.5	43.93	1 6.11	3 17.61	0.266
Sun.	4	2 44 9.12	9.614	15 54 16.8	43.28	1 6.19	3 23.99	0.242
Mon.	5	2 47 59.85	9.638	16 11 35.5	42.61	1 6.28	3 29.80	0.218
Tues.	6	2 51 51.16	9.662	16 28 38.2	41.93	1 6.36	3 35.02	0.195
Wed.	7	2 55 43.04	9.686	16 45 24.6	41.24	1 6.44	3 39.69	0.170
Thur.	8	2 59 35.51	9.710	17 1 54.3	40.53	1 6.52	3 43.77	0.147
Frid.	9	3 3 28.52	9.734	17 18 7.0	39.81	1 6.61	3 47.30	0.123
Sat.	10	3 7 22.13	9.758	17 34 2.5	39.08	1 6.69	3 50.24	0.099
Sun.	11	3 11 16.30	9.781	17 49 40.4	38.33	1 6.77	3 52.61	0.076
Mon.	12	3 15 11.04	9.805	18 5 0.3	37.58	1 6.85	3 54.43	0.052
Tues.	13	3 19 6.35	9.828	18 20 2.1	36.80	1 6.93	3 55.67	0.028
Wed.	14	3 23 2.23	9.851	18 34 45.3	36.02	1 7.02	3 56.35	0.005
Thur.	15	3 26 58.65	9.874	18 49 9.7	35.22	1 7.10	3 56.48	0.018
Frid.	16	3 30 55.63	9.897	19 3 15.0	34.41	1 7.18	3 56.05	0.040
Sat.	17	3 34 53.16	9.920	19 17 0.9	33.60	1 7.26	3 55.08	0.063
Sun.	18	3 38 51.24	9.943	19 30 27.2	32.76	1 7.34	3 53.56	0.085
Mon.	19	3 42 49.86	9.966	19 43 33.5	31.93	1 7.42	3 51.51	0.109
Tues.	20	3 46 49.05	9.987	19 56 19.9	31.08	1 7.50	3 48.89	0.131
Wed.	21	3 50 48.74	10.011	20 8 45.8	30.22	1 7.57	3 45.75	0.154
Thur.	22	3 54 49.00	10.032	20 20 51.1	29.35	1 7.65	3 42.06	0.175
Frid.	23	3 58 49.77	10.054	20 32 35.5	28.47	1 7.73	3 37.86	0.197
Sat.	24	4 2 51.07	10.076	20 43 58.7	27.59	1 7.80	3 33.14	0.219
Sun.	25	4 6 52.90	10.097	20 55 0.8	26.69	1 7.87	3 27.87	0.240
Mon.	26	4 10 55.23	10.118	21 5 41.4	25.78	1 7.94	3 22.12	0.261
Tues.	27	4 14 58.06	10.139	21 16 0.2	24.87	1 8.00	3 15.86	0.282
Wed.	28	4 19 1.40	10.159	21 25 57.1	23.95	1 8.07	3 9.10	0.302
Thur.	29	4 23 5.22	10.179	21 35 31.8	23.02	1 8.13	3 1.86	0.321
Frid.	30	4 27 9.51	10.198	21 44 44.3	22.08	1 8.20	2 54.15	0.341
Sat.	31	4 31 14.26	10.217	21 53 34.2	21.13	1 8.26	2 45.97	0.359
Sun.	32	4 35 19.46		N. 22 2 1.3		1 8.32	2 37.35	

* Mean Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be subtracted from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		h m s	° ' "	′ "	m s	h m s
Thur.	1	2 32 40·81	N.15 0 50·3	15 53·0	3 3·19	2 35 44·00
Frid.	2	2 36 29·87	15 18 55·2	15 52·8	3 10·68	2 39 40·55
Sat.	3	2 40 19·48	15 36 44·9	15 52·5	3 17·63	2 43 37·11
Sun.	4	2 44 9·66	15 54 19·3	15 52·3	3 24·00	2 47 33·66
Mon.	5	2 48 0·41	16 11 38·0	15 52·1	3 29·81	2 51 30·22
Tues.	6	2 51 51·74	16 28 40·7	15 51·8	3 35·03	2 55 26·77
Wed.	7	2 55 43·63	16 45 27·1	15 51·6	3 39·70	2 59 23·33
Thur.	8	2 59 36·10	17 1 56·8	15 51·4	3 43·78	3 3 19·88
Frid.	9	3 3 29·13	17 18 9·5	15 51·2	3 47·31	3 7 16·44
Sat.	10	3 7 22·75	17 34 5·0	15 51·0	3 50·25	3 11 13·00
Sun.	11	3 11 16·93	17 49 42·9	15 50·8	3 52·62	3 15 9·55
Mon.	12	3 15 11·68	18 5 2·8	15 50·6	3 54·43	3 19 6·11
Tues.	13	3 19 6·99	18 20 4·5	15 50·4	3 55·67	3 23 2·66
Wed.	14	3 23 2·87	18 34 47·7	15 50·2	3 56·35	3 26 59·22
Thur.	15	3 26 59·30	18 49 12·0	15 50·0	3 56·48	3 30 55·78
Frid.	16	3 30 56·28	19 3 17·3	15 49·8	3 56·05	3 34 52·33
Sat.	17	3 34 53·81	19 17 3·1	15 49·6	3 55·08	3 38 48·89
Sun.	18	3 38 51·89	19 30 29·4	15 49·4	3 53·56	3 42 45·45
Mon.	19	3 42 50·50	19 43 35·6	15 49·3	3 51·50	3 46 42·00
Tues.	20	3 46 49·68	19 56 21·9	15 49·1	3 48·88	3 50 38·56
Wed.	21	3 50 49·37	20 8 47·7	15 48·9	3 45·74	3 54 35·11
Thur.	22	3 54 49·62	20 20 52·9	15 48·7	3 42·05	3 58 31·67
Frid.	23	3 58 50·38	20 32 37·2	15 48·6	3 37·85	4 2 28·23
Sat.	24	4 2 51·66	20 44 0·4	15 48·4	3 33·13	4 6 24·79
Sun.	25	4 6 53·48	20 55 2·4	15 48·2	3 27·86	4 10 21·34
Mon.	26	4 10 55·80	21 5 42·9	15 48·1	3 22·10	4 14 17·90
Tues.	27	4 14 58·61	21 16 1·6	15 47·9	3 15·85	4 18 14·46
Wed.	28	4 19 1·93	21 25 58·4	15 47·8	3 9·08	4 22 11·01
Thur.	29	4 23 5·73	21 35 33·0	15 47·6	3 1·84	4 26 7·57
Frid.	30	4 27 10·00	21 44 45·4	15 47·5	2 54·13	4 30 4·13
Sat.	31	4 31 14·73	21 53 35·2	15 47·3	2 45·95	4 34 0·68
Sun.	32	4 35 19·91	N.22 2 2·2	15 47·2	2 37·33	4 37 57·24

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	40° 35' 37".5	S. 0° 28'	0.0035887	14 56.1	14 52.4	54 48.5	54 34.1
2	41 33 46.8	0° 36'	0.0036976	14 49.3	14 46.9	54 23.5	54 14.1
3	42 31 54.4	0° 41'	0.0038054	14 45.1	14 44.0	54 8.1	54 2.1
4	43 30 0.5	0° 45'	0.0039116	14 43.3	14 43.3	54 1.6	54 1.1
5	44 28 5.3	0° 45'	0.0040162	14 43.7	14 44.7	54 3.1	54 6.1
6	45 26 8.6	0° 42'	0.0041192	14 46.1	14 47.8	54 11.6	54 18.1
7	46 24 10.3	0° 37'	0.0042205	14 50.0	14 52.4	54 25.9	54 34.1
8	47 22 10.5	0° 30'	0.0043200	14 55.1	14 58.1	54 44.9	54 55.1
9	48 20 9.1	0° 21'	0.0044176	15 1.3	15 4.8	55 7.7	55 20.1
10	49 18 6.2	S. 0° 09'	0.0045135	15 8.4	15 12.3	55 33.7	55 47.1
11	50 16 1.5	N. 0° 03'	0.0046073	15 16.2	15 20.4	56 2.2	56 17.1
12	51 13 55.3	0° 15'	0.0046994	15 24.6	15 29.0	56 33.2	56 49.1
13	52 11 47.4	0° 26'	0.0047897	15 33.5	15 38.2	57 5.8	57 22.1
14	53 9 37.7	0° 37'	0.0048783	15 43.0	15 47.9	57 40.5	57 58.1
15	54 7 26.4	0° 45'	0.0049654	15 52.7	15 57.6	58 16.3	58 34.1
16	55 5 13.3	0° 52'	0.0050510	16 2.4	16 7.0	58 51.7	59 8.1
17	56 2 58.6	0° 56'	0.0051351	16 11.4	16 15.4	59 24.8	59 39.1
18	57 0 42.2	0° 56'	0.0052180	16 19.0	16 21.9	59 52.6	60 3.1
19	57 58 24.1	0° 55'	0.0052996	16 24.2	16 25.7	60 11.6	60 17.1
20	58 56 4.8	0° 50'	0.0053801	16 26.3	16 25.9	60 19.3	60 18.1
21	59 53 43.8	0° 42'	0.0054594	16 24.6	16 22.3	60 13.3	60 5.1
22	60 51 21.7	0° 33'	0.0055377	16 19.2	16 15.1	59 53.3	59 38.1
23	61 48 58.1	0° 22'	0.0056148	16 10.3	16 4.7	59 20.6	59 0.1
24	62 46 33.3	N. 0° 09'	0.0056909	15 58.7	15 52.2	58 38.0	58 14.1
25	63 44 7.6	S. 0° 03'	0.0057659	15 45.5	15 38.6	57 49.6	57 24.1
26	64 41 40.8	0° 16'	0.0058398	15 31.8	15 25.1	56 59.4	56 34.1
27	65 39 12.8	0° 27'	0.0059123	15 18.7	15 12.7	56 11.5	55 49.1
28	66 36 44.1	0° 38'	0.0059835	15 7.1	15 2.1	55 28.9	55 10.1
29	67 34 14.5	0° 46'	0.0060532	14 57.7	14 53.9	54 54.5	54 40.1
30	68 31 44.1	0° 52'	0.0061212	14 50.9	14 48.6	54 29.4	54 20.1
31	69 29 13.0	0° 57'	0.0061876	14 46.9	14 45.8	54 14.6	54 10.1
32	70 26 41.2	S. 0° 56'	0.0062521	14 45.5	14 45.9	54 9.7	54 10.1

MEAN TIME.

Days of the Week.	Days of the Month.	THE MOON'S					
		Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m
hur.	1	319 42 29.8	325 44 29.0	S. 4 2 40.2	S. 4 21 17.8	22.3	19 34.2
rid.	2	331 44 5.2	337 41 53.3	4 36 55.6	4 49 27.5	23.3	20 17.6
at.	3	343 38 24.5	349 34 10.4	4 58 49.1	5 4 56.7	24.3	20 59.1
un.	4	355 29 38.3	1 25 14.1	5 7 48.2	5 7 21.3	25.3	21 39.7
on.	5	7 21 20.3	13 18 17.7	5 3 36.1	4 56 32.9	26.3	22 20.2
ues.	6	19 16 24.9	25 15 56.8	4 46 14.3	4 32 43.9	27.3	23 1.5
Wed.	7	31 17 7.5	37 20 8.4	4 16 7.9	3 56 33.4	28.3	23 44.4
hur.	8	43 25 9.5	49 32 19.7	3 34 9.7	3 9 8.5	29.3	0
rid.	9	55 41 46.2	61 53 37.7	2 41 44.1	2 12 12.0	0.6	0 29.8
at.	10	68 8 0.5	74 25 3.6	1 40 50.9	S. 1 8 0.6	1.6	1 18.0
un.	11	80 44 55.7	87 7 46.7	S. 0 34 2.9	N. 0 0 38.9	2.6	2 9.3
on.	12	93 33 46.6	100 3 7.3	N. 0 35 39.0	1 10 31.2	3.6	3 3.2
ues.	13	106 36 0.6	113 12 39.4	1 44 48.7	2 18 2.4	4.6	3 58.9
Wed.	14	119 53 15.5	126 38 1.0	2 49 43.9	3 19 23.9	5.6	4 54.9
hur.	15	133 27 3.6	140 20 31.2	3 46 34.2	4 10 45.9	6.6	5 50.2
rid.	16	147 18 25.8	154 20 46.1	4 31 31.8	4 48 26.2	7.6	6 44.1
at.	17	161 27 23.4	168 38 3.2	5 1 6.6	5 9 12.4	8.6	7 36.5
un.	18	175 52 23.4	183 9 55.5	5 12 28.8	5 10 44.6	9.6	8 27.9
on.	19	190 30 1.6	197 51 58.5	5 3 56.5	4 52 6.2	10.6	9 19.1
ues.	20	205 14 56.1	212 38 0.6	4 35 23.3	4 14 4.6	11.6	10 11.1
Wed.	21	220 0 15.5	227 20 44.5	3 48 34.6	3 19 22.2	12.6	11 4.8
hur.	22	234 38 31.9	241 52 47.4	2 47 3.3	2 12 16.0	13.6	12 0.5
rid.	23	249 2 46.8	256 7 51.5	1 35 41.2	N. 0 58 0.4	14.6	12 58.0
at.	24	263 7 31.2	270 1 26.1	N. 0 19 54.1	S. 0 18 0.7	15.6	13 56.2
un.	25	276 49 22.9	283 31 17.5	S. 0 55 8.6	1 30 59.0	16.6	14 53.7
on.	26	290 7 12.7	296 37 19.7	2 5 4.3	2 37 2.4	17.6	15 48.8
ues.	27	303 1 54.7	309 21 19.4	3 6 34.4	3 33 24.7	18.6	16 40.5
Wed.	28	315 35 59.6	321 46 24.1	3 57 21.8	4 18 16.2	19.6	17 28.6
hur.	29	327 53 4.3	333 56 33.5	4 36 1.2	4 50 31.2	20.6	18 13.6
rid.	30	339 57 26.7	345 56 17.2	5 1 43.4	5 9 34.6	21.6	18 56.1
at.	31	351 53 40.9	357 50 11.0	5 14 3.6	5 15 10.2	22.6	19 37.0
un.	32	3 46 20.8	9 42 42.3	S. 5 12 54.9	S. 5 7 18.5	23.6	20 17.4

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 1.				SATURDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 33 52.37	S. 18 45 17.1	81.40	0	23 7 30.49	S. 11 1 54.2	109.29
1	21 35 55.35	18 37 8.8	82.17	1	23 9 22.40	10 50 58.4	109.69
2	21 37 58.04	18 28 55.8	82.93	2	23 11 14.15	10 40 0.3	110.09
3	21 40 0.45	18 20 38.2	83.68	3	23 13 5.75	10 28 59.8	110.47
4	21 42 2.58	18 12 16.1	84.43	4	23 14 57.20	10 17 56.9	110.85
5	21 44 4.42	18 3 49.5	85.16	5	23 16 48.49	10 6 51.8	111.23
6	21 46 5.98	17 55 18.5	85.89	6	23 18 39.64	9 55 44.4	111.59
7	21 48 7.26	17 46 43.2	86.61	7	23 20 30.64	9 44 34.9	111.95
8	21 50 8.27	17 38 3.5	87.32	8	23 22 21.51	9 33 23.2	112.30
9	21 52 9.01	17 29 19.6	88.02	9	23 24 12.24	9 22 9.4	112.65
10	21 54 9.47	17 20 31.4	88.72	10	23 26 2.84	9 10 53.4	112.99
11	21 56 9.66	17 11 39.1	89.40	11	23 27 53.31	8 59 35.5	113.32
12	21 58 9.58	17 2 42.7	90.07	12	23 29 43.65	8 48 15.6	113.65
13	22 0 9.24	16 53 42.3	90.74	13	23 31 33.87	8 36 53.7	113.97
14	22 2 8.63	16 44 37.8	91.40	14	23 33 23.97	8 25 29.8	114.28
15	22 4 7.77	16 35 29.4	92.05	15	23 35 13.95	8 14 4.1	114.59
16	22 6 6.64	16 26 17.1	92.70	16	23 37 3.82	8 2 36.6	114.89
17	22 8 5.27	16 17 0.9	93.33	17	23 38 53.58	7 51 7.3	115.18
18	22 10 3.63	16 7 40.9	93.96	18	23 40 43.24	7 39 36.2	115.47
19	22 12 1.75	15 58 17.1	94.58	19	23 42 32.79	7 28 3.3	115.75
20	22 13 59.62	15 48 49.7	95.19	20	23 44 22.25	7 16 28.8	116.03
21	22 15 57.24	15 39 18.5	95.80	21	23 46 11.61	7 4 52.7	116.29
22	22 17 54.62	15 29 43.7	96.40	22	23 48 0.87	6 53 14.9	116.55
23	22 19 51.76	S. 15 20 5.3	96.99	23	23 49 50.05	S. 6 41 35.6	116.81
FRIDAY 2.				SUNDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	22 21 48.66	S. 15 10 23.4	97.57	0	23 51 39.14	S. 6 29 54.7	117.06
1	22 23 45.33	15 0 38.0	98.14	1	23 53 28.15	6 18 12.4	117.30
2	22 25 41.77	14 50 49.1	98.71	2	23 55 17.08	6 6 28.6	117.53
3	22 27 37.98	14 40 56.9	99.27	3	23 57 5.94	5 54 43.4	117.76
4	22 29 33.96	14 31 1.2	99.82	4	23 58 54.73	5 42 56.8	117.98
5	22 31 29.72	14 21 2.3	100.36	5	0 0 43.44	5 31 8.9	118.20
6	22 33 25.25	14 11 0.1	100.90	6	0 2 32.09	5 19 19.7	118.41
7	22 35 20.57	14 0 54.8	101.43	7	0 4 20.68	5 7 29.2	118.61
8	22 37 15.67	13 50 46.2	101.95	8	0 6 9.22	4 55 37.6	118.81
9	22 39 10.56	13 40 34.5	102.46	9	0 7 57.69	4 43 44.7	119.00
10	22 41 5.24	13 30 19.7	102.97	10	0 9 46.12	4 31 50.7	119.18
11	22 42 59.72	13 20 1.9	103.47	11	0 11 34.50	4 19 55.6	119.36
12	22 44 53.99	13 9 41.1	103.95	12	0 13 22.83	4 7 59.5	119.53
13	22 46 48.06	12 59 17.4	104.44	13	0 15 11.12	3 56 2.3	119.69
14	22 48 41.93	12 48 50.8	104.91	14	0 16 59.38	3 44 4.1	119.85
15	22 50 35.61	12 38 21.3	105.38	15	0 18 47.60	3 32 5.0	120.00
16	22 52 29.10	12 27 49.0	105.85	16	0 20 35.79	3 20 5.0	120.15
17	22 54 22.40	12 17 13.9	106.30	17	0 22 23.96	3 8 4.2	120.28
18	22 56 15.51	12 6 36.1	106.75	18	0 24 12.10	2 56 2.5	120.42
19	22 58 8.44	11 55 55.6	107.19	19	0 26 0.22	2 44 0.0	120.54
20	23 0 1.20	11 45 12.4	107.63	20	0 27 48.32	2 31 56.7	120.66
21	23 1 53.78	11 34 26.7	108.05	21	0 29 36.41	2 19 52.7	120.77
22	23 3 46.18	11 23 38.4	108.47	22	0 31 24.49	2 7 48.1	120.88
23	23 5 38.42	11 12 47.5	108.89	23	0 33 12.57	1 55 42.8	120.98
24	23 7 30.49	S. 11 1 54.2		24	0 35 0.64	S. 1 43 36.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
MONDAY 5.				WEDNESDAY 7.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	0 35 0.64	S. 1 43 36.9	121.08	0	2 2 32.17	N. 7 55 32.7	117.40
1	0 36 48.71	1 31 30.4	121.16	1	2 4 24.28	8 7 17.1	117.15
2	0 38 36.79	1 19 23.5	121.24	2	2 6 16.55	8 19 0.0	116.88
3	0 40 24.88	1 7 16.0	121.32	3	2 8 8.99	8 30 41.2	116.60
4	0 42 12.97	0 55 8.1	121.38	4	2 10 1.60	8 42 20.8	116.32
5	0 44 1.08	0 42 59.8	121.45	5	2 11 54.38	8 53 58.7	116.03
6	0 45 49.21	0 30 51.1	121.50	6	2 13 47.34	9 5 34.9	115.73
7	0 47 37.37	0 18 42.1	121.55	7	2 15 40.48	9 17 9.2	115.42
8	0 49 25.54	S. 0 6 32.8	121.59	8	2 17 33.80	9 28 41.7	115.10
9	0 51 13.75	N. 0 5 36.7	121.62	9	2 19 27.31	9 40 12.3	114.77
10	0 53 1.98	0 17 46.4	121.65	10	2 21 21.00	9 51 41.0	114.44
11	0 54 50.26	0 29 56.3	121.67	11	2 23 14.88	10 3 7.6	114.10
12	0 56 38.57	0 42 6.3	121.68	12	2 25 8.96	10 14 32.2	113.74
13	0 58 26.93	0 54 16.4	121.69	13	2 27 3.24	10 25 54.6	113.38
14	1 0 15.33	1 6 26.6	121.69	14	2 28 57.71	10 37 14.9	113.02
15	1 2 3.78	1 18 36.7	121.68	15	2 30 52.38	10 48 33.0	112.64
16	1 3 52.28	1 30 46.8	121.67	16	2 32 47.27	10 59 48.9	112.25
17	1 5 40.84	1 42 56.8	121.65	17	2 34 42.35	11 11 2.4	111.86
18	1 7 29.46	1 55 6.7	121.62	18	2 36 37.65	11 22 13.5	111.45
19	1 9 18.14	2 7 16.5	121.59	19	2 38 33.17	11 33 22.2	111.04
20	1 11 6.89	2 19 26.0	121.55	20	2 40 28.90	11 44 28.5	110.62
21	1 12 55.70	2 31 35.2	121.50	21	2 42 24.84	11 55 32.2	110.19
22	1 14 44.59	2 43 44.2	121.44	22	2 44 21.01	12 6 33.3	109.75
23	1 16 33.56	N. 2 55 52.9	121.38	23	2 46 17.41	N. 12 17 31.8	109.30
TUESDAY 6.				THURSDAY 8.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	1 18 22.60	N. 3 8 1.2	121.31	0	2 48 14.03	N. 12 28 27.6	108.84
1	1 20 11.73	3 20 9.0	121.23	1	2 50 10.88	12 39 20.6	108.38
2	1 22 0.94	3 32 16.4	121.15	2	2 52 7.96	12 50 10.9	107.90
3	1 23 50.24	3 44 23.3	121.06	3	2 54 5.28	13 0 58.3	107.41
4	1 25 39.63	3 56 29.7	120.96	4	2 56 2.83	13 11 42.8	106.92
5	1 27 29.12	4 8 35.4	120.85	5	2 58 0.62	13 22 24.3	106.41
6	1 29 18.71	4 20 40.5	120.74	6	2 59 58.65	13 33 2.7	105.90
7	1 31 8.41	4 32 45.0	120.62	7	3 1 56.93	13 43 38.1	105.37
8	1 32 58.21	4 44 48.7	120.49	8	3 3 55.45	13 54 10.3	104.84
9	1 34 48.12	4 56 51.6	120.36	9	3 5 54.22	14 4 39.4	104.30
10	1 36 38.14	5 8 53.8	120.21	10	3 7 53.24	14 15 5.2	103.74
11	1 38 28.28	5 20 55.0	120.06	11	3 9 52.51	14 25 27.6	103.18
12	1 40 18.54	5 32 55.4	119.90	12	3 11 52.04	14 35 46.7	102.61
13	1 42 8.92	5 44 54.8	119.74	13	3 13 51.82	14 46 2.3	102.02
14	1 43 59.43	5 56 53.3	119.56	14	3 15 51.86	14 56 14.5	101.43
15	1 45 50.07	6 8 50.6	119.38	15	3 17 52.16	15 6 23.1	100.83
16	1 47 40.84	6 20 46.9	119.19	16	3 19 52.72	15 16 28.1	100.22
17	1 49 31.75	6 32 42.1	119.00	17	3 21 53.54	15 26 29.4	99.60
18	1 51 22.79	6 44 36.1	118.79	18	3 23 54.63	15 36 27.0	98.97
19	1 53 13.98	6 56 28.9	118.58	19	3 25 55.99	15 46 20.8	98.33
20	1 55 5.32	7 8 20.4	118.36	20	3 27 57.62	15 56 10.8	97.68
21	1 56 56.80	7 20 10.5	118.13	21	3 29 59.52	16 5 56.9	97.02
22	1 58 48.43	7 31 59.3	117.90	22	3 32 1.69	16 15 39.0	96.35
23	2 0 40.22	7 43 46.7	117.66	23	3 34 4.13	16 25 17.2	95.67
24	2 2 32.17	N. 7 55 32.7		24	3 36 6.85	N. 16 34 51.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.
FRIDAY 9.				SUNDAY 11.		
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>
0	3 36 6.85	N. 16 34 51.2	94.99	0	5 19 53.82	N. 22 34 19.2
1	3 38 9.85	16 44 21.1	94.29	1	5 22 10.41	22 39 19.4
2	3 40 13.13	16 53 46.8	93.58	2	5 24 27.25	22 44 12.6
3	3 42 16.69	17 3 8.3	92.86	3	5 26 44.34	22 48 58.6
4	3 44 20.53	17 12 25.5	92.13	4	5 29 1.69	22 53 37.5
5	3 46 24.65	17 21 38.2	91.39	5	5 31 19.28	22 58 9.3
6	3 48 29.05	17 30 46.5	90.64	6	5 33 37.11	23 2 33.7
7	3 50 33.74	17 39 50.4	89.88	7	5 35 55.19	23 6 50.9
8	3 52 38.72	17 48 49.6	89.10	8	5 38 13.51	23 11 0.8
9	3 54 43.98	17 57 44.2	88.32	9	5 40 32.06	23 15 3.3
10	3 56 49.53	18 6 34.2	87.53	10	5 42 50.84	23 18 58.3
11	3 58 55.37	18 15 19.4	86.73	11	5 45 9.85	23 22 45.9
12	4 1 1.49	18 23 59.8	85.92	12	5 47 29.09	23 26 25.9
13	4 3 7.90	18 32 35.3	85.09	13	5 49 48.55	23 29 58.4
14	4 5 14.60	18 41 5.8	84.26	14	5 52 8.23	23 33 23.3
15	4 7 21.59	18 49 31.4	83.42	15	5 54 28.12	23 36 40.6
16	4 9 28.88	18 57 51.9	82.56	16	5 56 48.22	23 39 50.1
17	4 11 36.45	19 6 7.3	81.70	17	5 59 8.53	23 42 51.9
18	4 13 44.31	19 14 17.5	80.83	18	6 1 29.04	23 45 45.9
19	4 15 52.47	19 22 22.5	79.94	19	6 3 49.75	23 48 32.1
20	4 18 0.91	19 30 22.1	79.05	20	6 6 10.65	23 51 10.5
21	4 20 9.65	19 38 16.4	78.15	21	6 8 31.75	23 53 40.9
22	4 22 18.68	19 46 5.3	77.23	22	6 10 53.04	23 56 3.5
23	4 24 28.01	N. 19 53 48.7	76.31	23	6 13 14.50	N. 23 58 18.0
SATURDAY 10.				MONDAY 12.		
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>
0	4 26 37.62	N. 20 1 26.6	75.38	0	6 15 36.15	N. 24 0 24.5
1	4 28 47.53	20 8 58.8	74.43	1	6 17 57.97	24 2 23.0
2	4 30 57.72	20 16 25.4	73.48	2	6 20 19.96	24 4 13.4
3	4 33 8.21	20 23 46.3	72.51	3	6 22 42.12	24 5 55.6
4	4 35 18.99	20 31 1.4	71.54	4	6 25 4.44	24 7 29.8
5	4 37 30.06	20 38 10.6	70.56	5	6 27 26.91	24 8 55.7
6	4 39 41.41	20 45 14.0	69.57	6	6 29 49.54	24 10 13.4
7	4 41 53.06	20 52 11.4	68.56	7	6 32 12.31	24 11 23.0
8	4 44 4.99	20 59 2.7	67.55	8	6 34 35.23	24 12 24.2
9	4 46 17.20	21 5 48.0	66.53	9	6 36 58.29	24 13 17.2
10	4 48 29.71	21 12 27.2	65.50	10	6 39 21.47	24 14 1.8
11	4 50 42.49	21 19 0.2	64.45	11	6 41 44.79	24 14 38.2
12	4 52 55.56	21 25 26.9	63.40	12	6 44 8.23	24 15 6.1
13	4 55 8.91	21 31 47.3	62.35	13	6 46 31.79	24 15 25.7
14	4 57 22.54	21 38 1.4	61.27	14	6 48 55.46	24 15 36.9
15	4 59 36.44	21 44 9.1	60.19	15	6 51 19.24	24 15 39.7
16	5 1 50.62	21 50 10.2	59.10	16	6 53 43.12	24 15 34.0
17	5 4 5.08	21 56 4.8	58.00	17	6 56 7.10	24 15 19.9
18	5 6 19.81	22 1 52.9	56.89	18	6 58 31.17	24 14 57.3
19	5 8 34.81	22 7 34.2	55.77	19	7 0 55.33	24 14 26.2
20	5 10 50.09	22 13 8.9	54.65	20	7 3 19.58	24 13 46.6
21	5 13 5.62	22 18 36.7	53.51	21	7 5 43.91	24 12 58.5
22	5 15 21.43	22 23 57.8	52.36	22	7 8 8.31	24 12 1.8
23	5 17 37.49	22 29 12.0	51.21	23	7 10 32.77	24 10 56.6
24	5 19 53.82	N. 22 34 19.2		24	7 12 57.30	N. 24 9 42.9

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>TUESDAY 13.</i>				<i>THURSDAY 15.</i>		
^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
7 12 57.30	N.24 9 42.9	13.72	0	9 8 17.67	N.20 24 52.3	80.01
7 15 21.89	24 8 20.5	15.15	1	9 10 39.86	20 16 52.2	81.27
7 17 46.54	24 6 49.6	16.58	2	9 13 1.93	20 8 44.7	82.52
7 20 11.23	24 5 10.1	18.01	3	9 15 23.86	20 0 29.6	83.76
7 22 35.96	24 3 22.1	19.44	4	9 17 45.66	19 52 7.0	85.00
7 25 0.74	24 1 25.4	20.87	5	9 20 7.32	19 43 37.0	86.22
7 27 25.54	23 59 20.2	22.30	6	9 22 28.84	19 34 59.7	87.44
7 29 50.38	23 57 6.4	23.74	7	9 24 50.23	19 26 15.0	88.65
7 32 15.24	23 54 43.9	25.17	8	9 27 11.47	19 17 23.1	89.86
7 34 40.12	23 52 12.9	26.60	9	9 29 32.57	19 8 23.9	91.05
7 37 5.01	23 49 33.3	28.03	10	9 31 53.53	18 59 17.6	92.24
7 39 29.91	23 46 45.2	29.46	11	9 34 14.35	18 50 4.2	93.41
7 41 54.81	23 43 48.4	30.88	12	9 36 35.02	18 40 43.8	94.58
7 44 19.71	23 40 43.1	32.31	13	9 38 55.54	18 31 16.3	95.73
7 46 44.61	23 37 29.3	33.73	14	9 41 15.92	18 21 41.9	96.88
7 49 9.49	23 34 6.9	35.16	15	9 43 36.15	18 12 0.6	98.02
7 51 34.36	23 30 35.9	36.58	16	9 45 56.24	18 2 12.5	99.15
7 53 59.21	23 26 56.4	38.00	17	9 48 16.17	17 52 17.6	100.27
7 56 24.03	23 23 8.4	39.42	18	9 50 35.96	17 42 16.0	101.38
7 58 48.83	23 19 11.9	40.84	19	9 52 55.60	17 32 7.7	102.48
8 1 13.59	23 15 6.9	42.25	20	9 55 15.09	17 21 52.9	103.57
8 3 38.32	23 10 53.4	43.66	21	9 57 34.43	17 11 31.4	104.65
8 6 3.00	23 6 31.5	45.07	22	9 59 53.63	17 1 3.5	105.72
8 8 27.64	N.23 2 1.1	46.47	23	10 2 12.67	N.16 50 29.2	106.78
<i>WEDNESDAY 14.</i>				<i>FRIDAY 16.</i>		
^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
8 10 52.23	N.22 57 22.2	47.88	0	10 4 31.57	N.16 39 48.5	107.83
8 13 16.77	22 52 35.0	49.27	1	10 6 50.32	16 29 1.5	108.87
8 15 41.25	22 47 39.3	50.67	2	10 9 8.93	16 18 8.3	109.90
8 18 5.66	22 42 35.4	52.06	3	10 11 27.39	16 7 8.9	110.92
8 20 30.01	22 37 23.0	53.44	4	10 13 45.70	15 56 3.4	111.93
8 22 54.29	22 32 2.4	54.82	5	10 16 3.87	15 44 51.8	112.92
8 25 18.49	22 26 33.4	56.20	6	10 18 21.90	15 33 34.3	113.91
8 27 42.62	22 20 56.3	57.57	7	10 20 39.78	15 22 10.9	114.88
8 30 6.67	22 15 10.8	58.94	8	10 22 57.51	15 10 41.6	115.84
8 32 30.63	22 9 17.2	60.30	9	10 25 15.11	14 59 6.5	116.79
8 34 54.51	22 3 15.4	61.65	10	10 27 32.57	14 47 25.8	117.73
8 37 18.29	21 57 5.5	63.00	11	10 29 49.88	14 35 39.4	118.66
8 39 41.97	21 50 47.5	64.35	12	10 32 7.06	14 23 47.4	119.57
8 42 5.55	21 44 21.4	65.69	13	10 34 24.10	14 11 50.0	120.48
8 44 29.03	21 37 47.3	67.02	14	10 36 41.01	13 59 47.2	121.37
8 46 52.41	21 31 5.2	68.35	15	10 38 57.78	13 47 38.9	122.25
8 49 15.68	21 24 15.1	69.67	16	10 41 14.42	13 35 25.4	123.12
8 51 38.84	21 17 17.1	70.98	17	10 43 30.93	13 23 6.7	123.98
8 54 1.89	21 10 11.2	72.29	18	10 45 47.31	13 10 42.9	124.82
8 56 24.82	21 2 57.4	73.59	19	10 48 3.57	12 58 13.9	125.66
8 58 47.63	20 55 35.9	74.89	20	10 50 19.70	12 45 40.0	126.48
9 1 10.33	20 48 6.5	76.18	21	10 52 35.71	12 33 1.1	127.29
9 3 32.90	20 40 29.5	77.46	22	10 54 51.59	12 20 17.4	128.08
9 5 55.35	20 32 44.7	78.74	23	10 57 7.36	12 7 28.9	128.87
9 8 17.67	N.20 24 52.3		24	10 59 23.01	N.11 54 35.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. for 10 ^m .
SATURDAY 17.				MONDAY 19.			
0	10 59 23.01	N. 11 54 35.7	129.65	0	12 46 32.53	N. 0 30 0.0	150
1	11 1 38.55	11 41 37.8	130.40	1	12 48 46.13	N. 0 14 56.7	150
2	11 3 53.97	11 28 35.4	131.15	2	12 50 59.77	S. 0 0 7.1	150
3	11 6 9.28	11 15 28.5	131.88	3	12 53 13.46	0 15 11.2	150
4	11 8 24.49	11 2 17.2	132.61	4	12 55 27.20	0 30 15.5	150
5	11 10 39.59	10 49 1.5	133.31	5	12 57 41.00	0 45 20.0	150
6	11 12 54.59	10 35 41.6	134.01	6	12 59 54.86	1 0 24.6	150
7	11 15 9.49	10 22 17.6	134.69	7	13 2 8.79	1 15 29.1	150
8	11 17 24.29	10 8 49.5	135.36	8	13 4 22.78	1 30 33.4	150
9	11 19 39.00	9 55 17.3	136.01	9	13 6 36.84	1 45 37.6	150
10	11 21 53.61	9 41 41.2	136.66	10	13 8 50.97	2 0 41.4	150
11	11 24 8.14	9 28 1.3	137.28	11	13 11 5.19	2 15 44.8	150
12	11 26 22.58	9 14 17.6	137.90	12	13 13 19.48	2 30 47.6	150
13	11 28 36.94	9 0 30.2	138.50	13	13 15 33.86	2 45 49.8	150
14	11 30 51.21	8 46 39.2	139.09	14	13 17 48.33	3 0 51.3	150
15	11 33 5.42	8 32 44.7	139.66	15	13 20 2.88	3 15 52.0	149
16	11 35 19.55	8 18 46.7	140.22	16	13 22 17.54	3 30 51.8	149
17	11 37 33.60	8 4 45.4	140.77	17	13 24 32.29	3 45 50.5	149
18	11 39 47.59	7 50 40.8	141.30	18	13 26 47.15	4 0 48.2	149
19	11 42 1.51	7 36 33.0	141.82	19	13 29 2.11	4 15 44.6	149
20	11 44 15.38	7 22 22.1	142.33	20	13 31 17.18	4 30 39.7	148
21	11 46 29.18	7 8 8.1	142.82	21	13 33 32.36	4 45 33.3	148
22	11 48 42.93	6 53 51.2	143.30	22	13 35 47.66	5 0 25.5	148
23	11 50 56.63	N. 6 39 31.4	143.76	23	13 38 3.08	S. 5 15 16.0	148
SUNDAY 18.				TUESDAY 20.			
0	11 53 10.28	N. 6 25 8.8	144.22	0	13 40 18.62	S. 5 30 4.8	147
1	11 55 23.88	6 10 43.5	144.66	1	13 42 34.29	5 44 51.8	147
2	11 57 37.45	5 56 15.5	145.08	2	13 44 50.08	5 59 36.9	147
3	11 59 50.97	5 41 45.1	145.48	3	13 47 6.00	6 14 20.0	146
4	12 2 4.47	5 27 12.2	145.87	4	13 49 22.06	6 29 1.0	146
5	12 4 17.93	5 12 36.9	146.25	5	13 51 38.26	6 43 39.7	146
6	12 6 31.36	4 57 59.4	146.61	6	13 53 54.60	6 58 16.1	145
7	12 8 44.77	4 43 19.7	146.96	7	13 56 11.08	7 12 50.0	145
8	12 10 58.16	4 28 38.0	147.29	8	13 58 27.70	7 27 21.5	144
9	12 13 11.53	4 13 54.2	147.61	9	14 0 44.48	7 41 50.3	144
10	12 15 24.89	3 59 8.5	147.92	10	14 3 1.41	7 56 16.4	143
11	12 17 38.24	3 44 21.0	148.20	11	14 5 18.49	8 10 39.6	143
12	12 19 51.58	3 29 31.8	148.47	12	14 7 35.73	8 25 0.0	142
13	12 22 4.92	3 14 41.0	148.73	13	14 9 53.13	8 39 17.2	142
14	12 24 18.26	2 59 48.6	148.97	14	14 12 10.69	8 53 31.4	141
15	12 26 31.60	2 44 54.8	149.20	15	14 14 28.41	9 7 42.3	141
16	12 28 44.96	2 29 59.6	149.41	16	14 16 46.30	9 21 49.9	140
17	12 30 58.32	2 15 3.1	149.61	17	14 19 4.36	9 35 54.0	140
18	12 33 11.70	2 0 5.5	149.79	18	14 21 22.59	9 49 54.6	139
19	12 35 25.10	1 45 6.8	149.95	19	14 23 40.99	10 3 51.6	138
20	12 37 38.53	1 30 7.0	150.10	20	14 25 59.57	10 17 44.8	138
21	12 39 51.98	1 15 6.4	150.24	21	14 28 18.33	10 31 34.2	137
22	12 42 5.46	1 0 5.0	150.36	22	14 30 37.26	10 45 19.7	136
23	12 44 18.98	0 45 2.8	150.46	23	14 32 56.37	10 59 1.1	136
24	12 46 32.53	N. 0 30		24	14 35 15.67	S. 11 12 38.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
<i>WEDNESDAY 21.</i>				<i>FRIDAY 23.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	14 35 15.67	S. 11 12 38.4	135.52	0	16 30 24.67	S. 20 15 0.9	84.05
1	14 37 35.15	11 26 11.6	134.80	1	16 32 52.85	20 23 25.2	82.67
2	14 39 54.82	11 39 40.3	134.06	2	16 35 21.15	20 31 41.2	81.28
3	14 42 14.67	11 53 4.7	133.31	3	16 37 49.58	20 39 48.9	79.88
4	14 44 34.71	12 6 24.6	132.54	4	16 40 18.14	20 47 48.2	78.47
5	14 46 54.94	12 19 39.8	131.75	5	16 42 46.81	20 55 39.0	77.06
6	14 49 15.36	12 32 50.3	130.95	6	16 45 15.59	21 3 21.4	75.64
7	14 51 35.97	12 45 55.9	130.13	7	16 47 44.49	21 10 55.2	74.20
8	14 53 56.77	12 58 56.7	129.29	8	16 50 13.48	21 18 20.4	72.77
9	14 56 17.77	13 11 52.4	128.44	9	16 52 42.58	21 25 37.0	71.32
10	14 58 38.96	13 24 43.1	127.57	10	16 55 11.77	21 32 44.9	69.87
11	15 1 0.35	13 37 28.5	126.69	11	16 57 41.05	21 39 44.1	68.41
12	15 3 21.93	13 50 8.6	125.79	12	17 0 10.42	21 46 34.6	66.93
13	15 5 43.71	14 2 43.3	124.87	13	17 2 39.87	21 53 16.2	65.46
14	15 8 5.68	14 15 12.6	123.94	14	17 5 9.39	21 59 48.9	63.98
15	15 10 27.86	14 27 36.2	122.99	15	17 7 38.98	22 6 12.8	62.50
16	15 12 50.22	14 39 54.1	122.03	16	17 10 8.63	22 12 27.8	61.01
17	15 15 12.79	14 52 6.3	121.05	17	17 12 38.34	22 18 33.8	59.51
18	15 17 35.55	15 4 12.7	120.06	18	17 15 8.11	22 24 30.9	58.01
19	15 19 58.51	15 16 13.0	119.06	19	17 17 37.92	22 30 19.0	56.51
20	15 22 21.66	15 28 7.4	118.04	20	17 20 7.78	22 35 58.0	55.00
21	15 24 45.01	15 39 55.6	117.00	21	17 22 37.67	22 41 28.0	53.49
22	15 27 8.55	15 51 37.6	115.95	22	17 25 7.59	22 46 48.9	51.97
23	15 29 32.29	S. 16 3 13.3	114.89	23	17 27 37.54	S. 22 52 0.8	50.45
<i>THURSDAY 22.</i>				<i>SATURDAY 24.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	15 31 56.22	S. 16 14 42.6	113.81	0	17 30 7.50	S. 22 57 3.5	48.93
1	15 34 20.34	16 26 5.4	112.71	1	17 32 37.48	23 1 57.1	47.41
2	15 36 44.66	16 37 21.7	111.61	2	17 35 7.46	23 6 41.5	45.88
3	15 39 9.17	16 48 31.3	110.49	3	17 37 37.45	23 11 16.8	44.35
4	15 41 33.86	16 59 34.3	109.35	4	17 40 7.43	23 15 42.8	42.81
5	15 43 58.75	17 10 30.4	108.20	5	17 42 37.39	23 19 59.7	41.28
6	15 46 23.82	17 21 19.6	107.04	6	17 45 7.34	23 24 7.4	39.75
7	15 48 49.07	17 32 1.8	105.87	7	17 47 37.26	23 28 5.9	38.21
8	15 51 14.51	17 42 37.0	104.68	8	17 50 7.15	23 31 55.1	36.67
9	15 53 40.14	17 53 5.1	103.48	9	17 52 37.00	23 35 35.2	35.13
10	15 56 5.94	18 3 25.9	102.26	10	17 55 6.81	23 39 6.0	33.59
11	15 58 31.92	18 13 39.5	101.04	11	17 57 36.57	23 42 27.5	32.05
12	16 0 58.08	18 23 45.8	99.80	12	18 0 6.27	23 45 39.9	30.51
13	16 3 24.41	18 33 44.6	98.55	13	18 2 35.91	23 48 42.9	28.97
14	16 5 50.92	18 43 35.8	97.29	14	18 5 5.48	23 51 36.8	27.44
15	16 8 17.58	18 53 19.6	96.01	15	18 7 34.98	23 54 21.4	25.90
16	16 10 44.42	19 2 55.6	94.73	16	18 10 4.39	23 56 56.8	24.37
17	16 13 11.42	19 12 24.0	93.43	17	18 12 33.71	23 59 23.0	22.84
18	16 15 38.58	19 21 44.6	92.12	18	18 15 2.94	24 1 40.0	21.31
19	16 18 5.89	19 30 57.3	90.80	19	18 17 32.07	24 3 47.9	19.78
20	16 20 33.35	19 40 2.1	89.47	20	18 20 1.09	24 5 46.5	18.25
21	16 23 0.97	19 48 58.9	88.13	21	18 22 29.99	24 7 36.0	16.73
22	16 25 28.73	19 57 47.7	86.78	22	18 24 58.78	24 9 16.4	15.21
23	16 27 56.63	20 6 28.4	85.42	23	18 27 27.44	24 10 47.7	13.69
24	16 30 24.67	S. 20 15 0.9		24	18 29 55.97	S. 24 12 9.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>SUNDAY 25.</i>				<i>TUESDAY 27.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	18 29 55.97	S. 24 12 9.8	12.18	0	20 24 24.81	S. 22 31 20.2	52.37
1	18 32 24.36	24 13 22.9	10.67	1	20 26 40.80	22 26 6.0	53.49
2	18 34 52.60	24 14 26.9	9.17	2	20 28 56.46	22 20 45.1	54.60
3	18 37 20.70	24 15 21.9	7.66	3	20 31 11.78	22 15 17.5	55.69
4	18 39 48.63	24 16 7.9	6.17	4	20 33 26.76	22 9 43.4	56.78
5	18 42 16.41	24 16 44.9	4.68	5	20 35 41.40	22 4 2.7	57.86
6	18 44 44.01	24 17 12.9	3.19	6	20 37 55.71	21 58 15.5	58.92
7	18 47 11.44	24 17 32.1	1.71	7	20 40 9.67	21 52 22.0	59.98
8	18 49 38.68	24 17 42.3	0.23	8	20 42 23.30	21 46 22.1	61.02
9	18 52 5.75	24 17 43.7	1.24	9	20 44 36.58	21 40 16.0	62.06
10	18 54 32.62	24 17 36.3	2.70	10	20 46 49.52	21 34 3.6	63.08
11	18 56 59.29	24 17 20.0	4.16	11	20 49 2.11	21 27 45.1	64.10
12	18 59 25.76	24 16 55.0	5.62	12	20 51 14.37	21 21 20.6	65.10
13	19 1 52.02	24 16 21.3	7.07	13	20 53 26.30	21 14 50.0	66.09
14	19 4 18.06	24 15 38.9	8.50	14	20 55 37.90	21 8 13.4	67.07
15	19 6 43.89	24 14 47.9	9.94	15	20 57 49.14	21 1 31.0	68.04
16	19 9 9.49	24 13 48.3	11.36	16	21 0 0.04	20 54 42.8	69.00
17	19 11 34.86	24 12 40.1	12.78	17	21 2 10.60	20 47 48.8	69.95
18	19 13 59.99	24 11 23.4	14.19	18	21 4 20.81	20 40 49.1	70.89
19	19 16 24.89	24 9 58.3	15.59	19	21 6 30.67	20 33 43.8	71.82
20	19 18 49.54	24 8 24.7	16.99	20	21 8 40.18	20 26 32.9	72.73
21	19 21 13.95	24 6 42.8	18.38	21	21 10 49.35	20 19 16.5	73.64
22	19 23 38.10	24 4 52.6	19.75	22	21 12 58.17	20 11 54.7	74.54
23	19 26 2.00	S. 24 2 54.0	21.13	23	21 15 6.64	S. 20 4 27.4	75.43
<i>MONDAY 26.</i>				<i>WEDNESDAY 28.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	19 28 25.63	S. 24 0 47.3	22.49	0	21 17 14.76	S. 19 56 54.9	76.30
1	19 30 49.00	23 58 32.4	23.84	1	21 19 22.58	19 49 17.1	77.17
2	19 33 12.09	23 56 9.3	25.18	2	21 21 30.07	19 41 34.1	78.03
3	19 35 34.91	23 53 38.2	26.52	3	21 23 37.23	19 33 45.9	78.87
4	19 37 57.45	23 50 59.1	27.85	4	21 25 44.05	19 25 52.7	79.71
5	19 40 19.72	23 48 12.0	29.17	5	21 27 50.54	19 17 54.4	80.55
6	19 42 41.69	23 45 17.0	30.47	6	21 29 56.70	19 9 51.3	81.35
7	19 45 3.38	23 42 14.2	31.77	7	21 32 2.53	19 1 43.2	82.15
8	19 47 24.77	23 39 3.5	33.06	8	21 34 8.04	18 53 30.2	82.95
9	19 49 45.87	23 35 45.1	34.35	9	21 36 13.22	18 45 12.6	83.73
10	19 52 6.67	23 32 19.1	35.62	10	21 38 18.07	18 36 50.1	84.51
11	19 54 27.16	23 28 45.4	36.88	11	21 40 22.60	18 28 23.1	85.28
12	19 56 47.35	23 25 4.1	38.13	12	21 42 26.81	18 19 51.4	86.03
13	19 59 7.23	23 21 15.3	39.37	13	21 44 30.70	18 11 15.2	86.78
14	20 1 26.79	23 17 19.1	40.60	14	21 46 34.28	18 2 34.6	87.51
15	20 3 46.05	23 13 15.5	41.82	15	21 48 37.54	17 53 49.5	88.24
16	20 6 4.98	23 9 4.5	43.04	16	21 50 40.49	17 45 0.0	88.96
17	20 8 23.60	23 4 46.3	44.24	17	21 52 43.13	17 36 6.3	89.67
18	20 10 41.89	23 0 20.9	45.43	18	21 54 45.46	17 27 8.3	90.37
19	20 12 59.86	22 55 48.3	46.61	19	21 56 47.49	17 18 6.1	91.06
20	20 15 17.51	22 51 8.6	47.78	20	21 58 49.21	17 8 59.7	91.74
21	20 17 34.83	22 46 21.9	48.95	21	22 0 50.63	16 59 49.3	92.41
22	20 19 51.82	22 41 28.2	50.10	22	22 2 51.76	16 50 34.8	93.07
23	20 22 8.48	22 36 27.6	51.24	23	22 4 52.59	16 41 16.4	93.73
24	20 24 24.81	S. 22 31 20.2		24	22 6 53.12	S. 16 31 54.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 29.				SATURDAY 31.			
0	22 6 53.12	S. 16 31 54.0	94.37	0	23 38 33.89	S. 8 1 26.0	115.88
1	22 8 53.36	16 22 27.8	95.01	1	23 40 23.94	7 49 50.7	116.15
2	22 10 53.32	16 12 57.7	95.64	2	23 42 13.87	7 38 13.8	116.42
3	22 12 52.99	16 3 23.9	96.25	3	23 44 3.68	7 26 35.3	116.68
4	22 14 52.37	15 53 46.4	96.86	4	23 45 53.37	7 14 55.3	116.93
5	22 16 51.48	15 44 5.2	97.46	5	23 47 42.94	7 3 13.7	117.18
6	22 18 50.31	15 34 20.5	98.05	6	23 49 32.41	6 51 30.6	117.42
7	22 20 48.87	15 24 32.1	98.64	7	23 51 21.77	6 39 46.1	117.65
8	22 22 47.15	15 14 40.3	99.21	8	23 53 11.02	6 28 0.2	117.88
9	22 24 45.17	15 4 45.1	99.78	9	23 55 0.18	6 16 12.9	118.10
10	22 26 42.92	14 54 46.4	100.33	10	23 56 49.25	6 4 24.3	118.32
11	22 28 40.42	14 44 44.4	100.88	11	23 58 38.22	5 52 34.5	118.52
12	22 30 37.65	14 34 39.1	101.42	12	0 0 27.11	5 40 43.3	118.73
13	22 32 34.63	14 24 30.6	101.95	13	0 2 15.91	5 28 50.9	118.92
14	22 34 31.36	14 14 18.9	102.48	14	0 4 4.64	5 16 57.4	119.12
15	22 36 27.84	14 4 4.1	102.99	15	0 5 53.29	5 5 2.7	119.30
16	22 38 24.07	13 53 46.1	103.50	16	0 7 41.87	4 53 6.9	119.48
17	22 40 20.06	13 43 25.1	104.00	17	0 9 30.38	4 41 10.0	119.65
18	22 42 15.81	13 33 1.1	104.49	18	0 11 18.82	4 29 12.1	119.82
19	22 44 11.32	13 22 34.2	104.98	19	0 13 7.21	4 17 13.2	119.98
20	22 46 6.61	13 12 4.3	105.45	20	0 14 55.54	4 5 13.3	120.13
21	22 48 1.66	13 1 31.6	105.92	21	0 16 43.82	3 53 12.6	120.28
22	22 49 56.48	12 50 56.0	106.39	22	0 18 32.05	3 41 10.9	120.42
23	22 51 51.09	S. 12 40 17.7	106.84	23	0 20 20.23	S. 3 29 8.3	120.56
FRIDAY 30.				SUNDAY, JUNE 1.			
0	22 53 45.47	S. 12 29 36.7	107.29	0	0 22 8.38	S. 3 17 5.0	
1	22 55 39.63	12 18 53.0	107.73				
2	22 57 33.58	12 8 6.6	108.16				
3	22 59 27.32	11 57 17.7	108.58				
4	23 1 20.86	11 46 26.2	109.00				
5	23 3 14.19	11 35 32.2	109.41				
6	23 5 7.32	11 24 35.7	109.81				
7	23 7 0.26	11 13 36.8	110.21				
8	23 8 53.00	11 2 35.5	110.60				
9	23 10 45.56	10 51 31.9	110.98				
10	23 12 37.93	10 40 26.1	111.36				
11	23 14 30.13	10 29 17.9	111.73				
12	23 16 22.14	10 18 7.6	112.09				
13	23 18 13.98	10 6 55.0	112.44				
14	23 20 5.66	9 55 40.3	112.79				
15	23 21 57.17	9 44 23.6	113.13				
16	23 23 48.51	9 33 4.8	113.46				
17	23 25 39.70	9 21 44.0	113.79				
18	23 27 30.74	9 10 21.3	114.11				
19	23 29 21.62	8 58 56.6	114.42				
20	23 31 12.35	8 47 30.1	114.73				
21	23 33 2.94	8 36 1.7	115.03				
22	23 34 53.39	8 24 31.6	115.32				
23	23 36 43.71	8 12 59.6	115.60				
24	23 38 33.89	S. 8 1 26.0					

PHASES OF THE MOON.

d h m
 ● New Moon 8 8 25.1
 ☾ First Quarter .. 15 19 54.4
 ○ Full Moon 22 11 1.8
 ☾ Last Quarter... 29 20 53.7

d h
 ☾ Apogee 4 7
 ☾ Perigee 20 2
 ☾ Apogee 31 23

MEAN TIME.
LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
1	Antares W.	72 1 35	3008	73 31 38	3017	75 1 30	3025	76 31 12	3034
	Mars E.	34 19 30	3295	32 55 13	3307	31 31 10	3320	30 7 22	3332
	SUN E.	80 54 30	3352	79 31 18	3362	78 8 18	3371	76 45 28	3380
2	Antares W.	83 57 19	3067	85 26 9	3073	86 54 51	3078	88 23 27	3083
	Mars E.	23 11 50	3395	21 49 28	3409	20 27 22	3426	19 5 35	3443
	SUN E.	69 53 47	3419	68 31 52	3425	67 10 4	3431	65 48 23	3437
3	Antares W.	95 45 7	3101	97 13 15	3104	98 41 20	3106	100 9 22	3108
	α Aquilæ W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	59 1 20	3456	57 40 7	3460	56 18 58	3463	54 57 52	3464
4	Antares W.	107 29 8	3111	108 57 4	3112	110 24 59	3111	111 52 55	3110
	α Aquilæ W.	63 49 21	3997	65 1 4	3974	66 13 9	3952	67 25 36	3932
	Fomalhaut W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	48 12 45	3468	46 51 45	3468	45 30 45	3468	44 9 45	3467
5	α Aquilæ W.	73 32 28	3849	74 46 40	3835	76 1 6	3822	77 15 46	3809
	Fomalhaut W.	38 16 11	3564	39 35 25	3530	40 55 16	3499	42 15 41	3471
	Mars W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	37 24 24	3459	36 3 14	3456	34 42 1	3454	33 20 46	3452
6	α Aquilæ W.	83 32 6	3756	84 47 54	3748	86 3 50	3741	87 19 54	3733
	Fomalhaut W.	49 4 56	3358	50 28 1	3339	51 51 27	3321	53 15 14	3304
	Mars W.	21 42 7	3389	23 4 36	3377	24 27 19	3365	25 50 16	3354
10	SUN W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux E.	43 31 0	2837	41 57 20	2830	40 23 31	2824	38 49 35	2818
	Regulus E.	79 24 27	2818	77 50 23	2810	76 16 8	2802	74 41 42	2795
	Saturn E.	116 29 50	2797	114 55 18	2789	113 20 35	2780	111 45 41	2772
11	SUN W.	30 29 11	3105	31 57 15	3094	33 25 32	3083	34 54 3	3071
	Pollux E.	30 58 2	2793	29 23 25	2790	27 48 44	2788	26 14 1	2788
	Regulus E.	66 46 50	2751	65 11 18	2743	63 35 35	2735	61 59 42	2726
	Saturn E.	103 48 23	2729	102 12 22	2720	100 36 8	2711	98 59 43	2703
12	SUN W.	42 20 4	3017	43 49 56	3006	45 20 2	2995	46 50 21	2984
	Regulus E.	53 57 25	2684	52 20 24	2675	50 43 11	2667	49 5 47	2659
	Saturn E.	90 54 41	2658	89 17 5	2649	87 39 16	2639	86 1 14	2631
	Spica ♀ E.	107 58 34	2700	106 21 54	2691	104 45 2	2681	103 7 56	2671
13	SUN W.	54 25 22	2930	55 57 3	2919	57 28 58	2908	59 1 7	2896
	Regulus E.	40 56 0	2618	39 17 30	2610	37 38 49	2602	35 59 57	2596
	Saturn E.	77 47 58	2583	76 8 40	2574	74 29 9	2564	72 49 25	2554
	Spica ♀ E.	94 59 11	2622	93 20 46	2612	91 42 8	2602	90 3 16	2593
14	SUN W.	66 45 26	2841	68 19 1	2829	69 52 51	2818	71 26 55	2806
	Regulus E.	27 43 20	2566	26 3 38	2562	24 23 51	2561	22 44 2	2561
	Saturn E.	64 27 19	2505	62 46 13	2495	61 4 52	2483	59 23 17	2475
	Spica ♀ E.	81 45 33	2543	80 5 19	2533	78 24 52	2522	76 44 10	2513
15	SUN W.	79 21 2	2750	80 56 36	2738	82 32 26	2726	84 8 31	2714
	Pollux W.	22 37 7	2515	24 18 0	2494	25 59 22	2475	27 41 10	2458
	Saturn E.	50 51 51	2424	49 8 50	2414	47 25 36	2403	45 42 6	2394
	Spica ♀ E.	68 17 16	2454	66 33 12	2434	64 52 34	2445	63 10 23	2435
	Antares E.	114 11 26	2456	112 56 16	2448	110 46 49	2436	109 4 6	2425

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
1	Antares W.	78 0 43	3041	79 30 5	3048	80 59 18	3055	82 28 23	3062
	Mars E.	28 43 47	3344	27 20 26	3357	25 57 20	3369	24 34 28	3381
	SUN E.	75 22 49	3389	74 0 20	3397	72 38 0	3406	71 15 50	3412
2	Antares W.	89 51 57	3088	91 20 22	3092	92 48 41	3096	94 16 56	3099
	Mars E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	SUN E.	64 26 48	3442	63 5 19	3447	61 43 55	3450	60 22 35	3454
3	Antares W.	101 37 22	3109	103 5 20	3110	104 33 17	3111	106 1 13	3112
	α Aquilæ W.	59 6 38	4102	60 16 38	4073	61 27 6	4045	62 38 1	4020
	SUN E.	53 36 48	3466	52 15 46	3467	50 54 45	3467	49 33 44	3469
4	Antares W.	113 20 53	3110	114 48 51	3109	116 16 50	3106	117 44 52	3103
	α Aquilæ W.	68 38 23	3915	69 51 28	3897	71 4 51	3879	72 18 32	3864
	Fomalhaut W.	33 6 32	3734	34 22 43	3685	35 39 46	3640	36 57 37	3600
	SUN E.	42 48 44	3465	41 27 41	3464	40 6 37	3463	38 45 32	3461
5	α Aquilæ W.	78 30 39	3797	79 45 44	3786	81 1 1	3776	82 16 28	3766
	Fomalhaut W.	43 36 37	3445	44 58 3	3422	46 19 55	3398	47 42 14	3378
	Mars W.	- - -	- - -	- - -	- - -	18 57 58	3418	20 19 54	3403
	SUN E.	31 59 28	3449	30 38 7	3447	29 16 43	3445	27 55 17	3442
6	α Aquilæ W.	88 36 6	3726	89 52 25	3720	91 8 51	3715	92 25 22	3710
	Fomalhaut W.	54 39 21	3288	56 3 47	3273	57 28 30	3258	58 53 31	3243
	Mars W.	27 13 25	3343	28 36 47	3333	30 0 20	3324	31 24 4	3315
10	SUN W.	24 39 28	3155	26 6 31	3143	27 33 49	3129	29 1 23	3118
	Pollux E.	37 15 30	2812	35 41 18	2807	34 6 59	2802	32 32 33	2798
	Regulus E.	73 7 5	2785	71 32 18	2776	69 57 19	2769	68 22 10	2760
	Saturn E.	110 10 36	2763	108 35 20	2754	106 59 52	2747	105 24 14	2737
11	SUN W.	36 22 48	3060	37 51 47	3049	39 20 59	3038	40 50 24	3026
	Pollux E.	24 39 17	2788	23 4 33	2792	21 29 55	2798	19 55 24	2807
	Regulus E.	60 23 37	2718	58 47 21	2709	57 10 53	2701	55 34 15	2693
	Saturn E.	97 23 7	2693	95 46 18	2685	94 9 18	2676	92 32 6	2666
12	SUN W.	48 20 54	2973	49 51 41	2962	51 22 41	2952	52 53 54	2940
	Regulus E.	47 28 12	2651	45 50 26	2643	44 12 29	2634	42 34 20	2626
	Saturn E.	84 23 1	2621	82 44 34	2612	81 5 55	2602	79 27 3	2593
	Spica η E.	101 30 37	2662	99 53 6	2652	98 15 21	2641	96 37 22	2632
13	SUN W.	60 33 31	2886	62 6 8	2875	63 38 59	2863	65 12 5	2852
	Regulus E.	34 20 56	2588	32 41 45	2582	31 2 25	2575	29 22 56	2570
	Pollux E.	71 9 27	2544	69 29 15	2535	67 48 50	2525	66 8 12	2515
	Spica η E.	88 24 11	2583	86 44 52	2572	85 5 19	2563	83 25 33	2553
14	SUN W.	73 1 15	2795	74 35 49	2784	76 10 38	2772	77 45 42	2760
	Regulus E.	21 4 13	2564	19 24 28	2570	- - -	- - -	- - -	- - -
	Saturn E.	57 41 29	2465	55 59 26	2454	54 17 8	2445	52 34 37	2434
	Spica η E.	75 3 15	2503	73 22 6	2493	71 40 43	2484	69 59 7	2473
15	SUN W.	85 44 52	2703	87 21 28	2692	88 58 19	2680	90 35 26	2669
	Pollux W.	29 23 22	2440	31 6 0	2424	32 49 0	2409	34 32 22	2396
	Saturn E.	43 58 23	2384	42 14 25	2374	40 30 13	2364	38 45 47	2355
	Spica η E.	61 27 38	2426	59 44 40	2417	58 1 29	2408	56 18 6	2399
	Antares E.	107 21 7	2414	105 37 52	2403	103 54 21	2392	102 10 35	2381

MEAN TIME.
LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
16	SUN W.	92 12 48	2657	93 50 25	2646	95 28 17	2635	97 6 25	2624
	Pollux W.	36 16 3	2381	38 0 5	2368	39 44 26	2355	41 29 6	2343
	Saturn E.	37 1 7	2345	35 16 13	2336	33 31 6	2327	31 45 46	2318
	Spica π E.	54 34 30	2390	52 50 41	2382	51 6 41	2374	49 22 29	2367
	Antares E.	100 26 33	2371	98 42 16	2359	96 57 42	2349	95 12 54	2339
17	SUN W.	105 20 47	2570	107 0 23	2560	108 40 13	2550	110 20 17	2540
	Pollux W.	50 16 46	2285	52 3 7	2274	53 49 44	2264	55 36 37	2254
	Regulus W.	- - -	-	- - -	-	- - -	-	- - -	-
	Saturn E.	22 56 10	2284	21 9 47	2279	19 23 17	2278	17 36 45	2278
	Spica π E.	40 39 4	2338	38 54 0	2334	37 8 50	2332	35 23 37	2331
	Antares E.	86 25 10	2289	84 38 54	2279	82 52 24	2270	81 5 40	2262
18	SUN W.	118 43 52	2495	120 25 12	2487	122 6 43	2479	123 48 26	2472
	Pollux W.	64 34 31	2208	66 22 46	2201	68 11 12	2192	69 59 51	2186
	Regulus W.	28 42 11	2238	30 29 42	2225	32 17 32	2214	34 5 39	2204
	Antares E.	72 8 56	2221	70 21 0	2214	68 32 54	2208	66 44 38	2201
	α Aquilæ E.	115 49 42	2103	114 21 36	2069	112 52 48	2038	111 23 23	2009
19	Pollux W.	79 5 36	2155	80 55 11	2150	82 44 54	2146	84 34 43	2142
	Regulus W.	43 9 39	2164	44 59 1	2157	46 48 33	2153	48 38 12	2147
	Saturn W.	- - -	-	- - -	-	- - -	-	- - -	-
	Antares E.	57 41 14	2178	55 52 14	2175	54 3 9	2178	52 14 1	2171
	α Aquilæ E.	103 48 26	2202	102 16 10	2188	100 43 36	2174	99 10 44	2163
20	Pollux W.	93 45 1	2130	95 35 14	2130	97 25 27	2130	99 15 40	2130
	Regulus W.	57 48 3	2132	59 38 13	2131	61 28 25	2130	63 18 38	2130
	Saturn W.	21 4 29	2140	22 54 27	2135	24 44 33	2131	26 34 45	2130
	Antares E.	43 8 4	2175	41 18 59	2179	39 30 0	2183	37 41 7	2190
	α Aquilæ E.	91 23 34	2133	89 49 49	2133	88 16 4	2134	86 42 20	2138
21	Pollux W.	108 26 18	2142	110 16 13	2145	112 6 3	2151	113 55 45	2157
	Regulus W.	72 29 28	2139	74 19 28	2142	76 9 23	2147	77 59 11	2151
	Saturn W.	35 46 5	2131	37 36 17	2134	39 26 24	2137	41 16 26	2141
	Spica π W.	19 22 11	2396	21 5 51	2358	22 50 26	2331	24 35 41	2310
	Antares E.	28 39 56	2249	26 52 42	2269	25 5 57	2294	23 19 49	2324
	α Aquilæ E.	78 55 30	2181	77 22 47	2186	75 50 23	2192	74 18 20	2193
	Fomalhaut E.	111 25 44	2333	109 40 33	2333	107 55 21	2332	106 10 8	2334
22	Regulus W.	87 6 6	2184	88 54 57	2192	90 43 36	2201	92 32 2	2211
	Saturn W.	50 24 38	2173	52 13 47	2181	54 2 43	2190	55 51 26	2198
	Spica π W.	33 27 8	2270	35 13 51	2270	37 0 35	2272	38 47 15	2276
	α Aquilæ E.	66 45 10	2065	65 16 18	2101	63 48 9	2138	62 20 46	2180
	Fomalhaut E.	97 25 6	2355	95 40 27	2363	93 55 59	2371	92 11 42	2380
	α Pegasi E.	113 52 6	2671	112 14 47	2666	110 37 21	2664	108 59 53	2663
23	Regulus W.	101 30 24	2266	103 17 14	2278	105 3 46	2291	106 49 59	2304
	Saturn W.	64 51 23	2252	66 38 33	2264	68 25 25	2277	70 11 58	2290
	Spica π W.	47 38 51	2309	49 24 38	2318	51 10 11	2328	52 55 29	2339
	Fomalhaut E.	83 33 53	2436	81 51 10	2451	80 8 48	2465	78 26 46	2480
	α Pegasi E.	100 52 56	2682	99 15 52	2690	97 38 59	2699	96 2 18	2710
	Mars E.	121 42 14	2502	120 1 4	2515	118 20 12	2528	116 39 37	2542

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LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
6	SUN W.	98 44 48	2612	100 23 26	2602	102 2 18	2591	103 41 25	2580
	Pollux W.	43 14 3	2330	44 59 19	2319	46 44 51	2307	48 30 40	2296
	Saturn E.	30 0 13	2310	28 14 28	2302	26 28 32	2296	24 42 26	2289
	Spica π E.	47 38 7	2359	45 53 34	2353	44 8 52	2348	42 24 2	2342
	Antares E.	93 27 51	2328	91 42 32	2318	89 56 59	2309	88 11 12	2298
7	SUN W.	112 0 34	2530	113 41 5	2522	115 21 48	2512	117 2 44	2504
	Pollux W.	57 23 44	2245	59 11 5	2235	60 58 40	2226	62 46 29	2217
	Regulus W.	21 35 49	2302	23 21 46	2283	25 8 10	2266	26 54 59	2251
	Saturn E.	- - -	-	- - -	-	- - -	-	- - -	-
	Spica π E.	33 38 22	2333	31 53 11	2334	30 8 1	2339	28 22 58	2346
	Antares E.	79 18 44	2253	77 31 35	2245	75 44 14	2236	73 56 40	2229
8	SUN W.	- - -	-	- - -	-	- - -	-	- - -	-
	Pollux W.	71 48 40	2178	73 37 40	2172	75 26 49	2166	77 16 8	2160
	Regulus W.	35 54 1	2194	37 42 37	2186	39 31 26	2178	41 20 27	2170
	Antares E.	64 56 12	2196	63 7 39	2190	61 18 57	2186	59 30 9	2182
	α Aquilæ E.	109 53 22	2285	108 22 50	2261	106 51 48	2239	105 20 19	2220
9	Pollux W.	86 24 38	2139	88 14 38	2136	90 4 43	2134	91 54 51	2132
	Regulus W.	50 27 59	2143	52 17 53	2139	54 7 52	2137	55 57 55	2134
	Saturn W.	- - -	-	- - -	-	17 25 8	2156	19 14 42	2147
	Antares E.	50 24 50	2170	48 35 38	2170	46 46 25	2170	44 57 13	2172
	α Aquilæ E.	97 37 38	2253	96 4 19	2246	94 30 51	2240	92 57 15	2236
10	Pollux W.	101 5 53	2132	102 56 4	2133	104 46 13	2136	106 36 18	2139
	Regulus W.	65 8 52	2131	66 59 4	2132	68 49 15	2134	70 39 23	2136
	Saturn W.	28 24 59	2128	31 15 16	2127	32 5 34	2128	33 55 51	2130
	Antares E.	35 52 24	2198	34 3 54	2207	32 15 37	2218	30 27 37	2231
	α Aquilæ E.	85 8 41	2242	83 35 8	2248	82 1 43	2258	80 28 30	2268
11	Pollux W.	115 45 18	2163	117 34 42	2169	119 23 57	2176	121 13 0	2183
	Regulus W.	79 48 52	2157	81 38 25	2163	83 27 49	2169	85 17 3	2176
	Saturn W.	43 6 22	2147	44 56 9	2152	46 45 49	2159	48 35 19	2166
	Spica π W.	26 21 25	2295	28 7 32	2284	29 53 55	2277	31 40 29	2273
	Antares E.	- - -	-	- - -	-	- - -	-	- - -	-
	α Aquilæ E.	72 46 42	2254	71 15 31	2277	69 44 50	3004	68 14 42	3033
	Fomalhaut E.	104 24 58	2336	102 39 51	2339	100 54 49	2344	99 9 54	2349
12	Regulus W.	94 20 13	2220	96 8 10	2231	97 55 51	2242	99 43 16	2254
	Saturn W.	57 39 56	2208	59 28 11	2219	61 16 11	2229	63 3 55	2240
	Spica π W.	40 33 50	2279	42 20 20	2285	44 6 41	2292	45 52 52	2300
	α Aquilæ E.	60 54 13	2225	59 28 33	2275	58 3 52	2328	56 40 13	2338
	Fomalhaut E.	90 27 38	2389	88 43 48	2400	87 0 13	2411	85 16 54	2424
	α Pegasi E.	107 22 23	2663	105 44 54	2666	104 7 29	2670	102 30 9	2675
13	Regulus W.	108 35 52	2318	110 21 25	2333	112 6 37	2347	113 51 28	2362
	Saturn W.	71 58 12	2303	73 44 7	2317	75 29 41	2332	77 14 54	2346
	Spica π W.	54 40 32	2351	56 25 17	2362	58 9 46	2375	59 53 56	2389
	Fomalhaut E.	76 45 5	2497	75 3 48	2515	73 22 55	2532	71 42 26	2551
	α Pegasi E.	94 25 51	2721	92 49 39	2734	91 13 44	2748	89 38 8	2762
	Mars E.	114 59 22	2556	113 19 26	2569	111 39 49	2585	110 0 34	2599

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	
		° ' "		° ' "		° ' "		° ' "	
24	Saturn W.	78 59 46	2361	80 44 17	2377	82 28 25	2391	84 12 12	
	Spica π W.	61 37 47	2402	63 21 19	2417	65 4 30	2430	66 47 22	
	Antares W.	- - -	-	- - -	-	- - -	-	- - -	
	Fomalhaut E.	70 2 23	2570	68 22 47	2590	66 43 38	2611	65 4 58	
	α Pegasi E.	88 2 50	2778	86 27 54	2795	84 53 19	2813	83 19 8	
	Mars E.	108 21 38	2615	106 43 4	2632	105 4 52	2647	103 27 1	
25	Saturn W.	92 45 25	2489	94 26 53	2505	96 7 59	2522	97 48 41	
	Spica π W.	75 16 17	2523	76 56 58	2540	78 37 16	2556	80 17 12	
	Antares W.	29 33 26	2593	31 12 30	2602	32 51 23	2610	34 30 5	
	Fomalhaut E.	56 59 24	2756	55 23 58	2783	53 49 8	2812	52 14 56	
	α Pegasi E.	75 34 36	2939	74 3 6	2968	72 32 7	2989	71 1 40	
	Mars E.	95 23 23	2749	93 47 48	2767	92 12 37	2784	90 37 48	
26	Saturn W.	106 6 18	2624	107 44 40	2641	109 22 39	2658	111 0 15	
	Spica π W.	88 31 6	2656	90 8 45	2673	91 46 1	2690	93 22 55	
	Antares W.	42 39 46	2681	44 16 52	2695	45 53 39	2708	47 30 8	
	Fomalhaut E.	44 34 18	3018	43 4 28	3060	41 35 29	3103	40 7 23	
	α Pegasi E.	63 37 58	3163	62 11 4	3196	60 44 50	3231	59 19 17	
	Mars E.	82 49 36	2891	81 17 6	2909	79 44 59	2927	78 13 15	
	α Arietis E.	105 20 41	2767	103 45 30	2781	102 10 37	2796	100 36 4	
27	Spica π W.	101 21 54	2788	102 56 38	2804	104 31 1	2820	106 5 3	
	Antares W.	55 27 51	2794	57 2 27	2808	58 36 45	2822	60 10 44	
	Mars E.	70 40 2	3031	69 10 27	3048	67 41 13	3064	66 12 19	
	α Arietis E.	92 48 17	2887	91 15 42	2904	89 43 28	2918	88 11 32	
	SUN E.	122 34 4	3099	121 5 53	3115	119 38 2	3132	118 10 31	
28	Spica π W.	113 50 22	2909	115 22 29	2923	116 54 19	2937	118 25 51	
	Antares W.	67 56 19	2902	69 28 36	2914	71 0 37	2927	72 32 22	
	Mars E.	58 52 34	3156	57 25 32	3169	55 58 46	3184	54 32 18	
	α Arietis E.	80 36 40	3008	79 6 37	3022	77 36 52	3037	76 7 25	
	SUN E.	110 57 36	3223	109 31 54	3237	108 6 29	3250	106 41 19	
29	Antares W.	80 7 34	2993	81 37 56	3002	83 8 7	3011	84 38 6	
	Mars E.	47 23 47	3259	45 58 48	3270	44 34 2	3281	43 9 28	
	α Arietis E.	68 44 27	3120	67 16 42	3133	65 49 12	3146	64 21 58	
	SUN E.	99 39 17	3324	98 15 33	3335	96 52 2	3345	95 28 42	
30	Antares W.	92 5 28	3058	93 34 29	3065	95 3 22	3069	96 32 9	
	Mars E.	36 9 34	3338	34 46 7	3347	33 22 50	3355	31 59 42	
	α Arietis E.	57 9 44	3225	55 44 4	3237	54 18 39	3251	52 53 30	
	SUN E.	88 34 37	3395	87 12 15	3402	85 50 1	3408	84 27 54	
31	Antares W.	103 54 33	3096	105 22 48	3098	106 51 0	3101	108 19 8	
	α Aquilæ W.	61 1 13	4049	62 12 4	4025	63 23 19	4003	64 34 56	
	Mars E.	25 6 13	3401	23 43 57	3409	22 21 51	3417	20 59 54	
	α Arietis E.	45 51 50	3389	44 28 24	3355	43 5 16	3374	41 42 30	
	SUN E.	77 38 41	3434	76 17 3	3438	74 55 29	3439	73 33 56	

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Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
24	Saturn W.	85 55 37	2424	87 38 38	2439	89 21 17	2456	91 3 32	2472
	Spica π W.	68 29 52	2460	70 12 1	2476	71 53 48	2491	73 35 14	2507
	Antares W.	22 56 41	2591	24 35 49	2587	26 15 2	2586	27 54 16	2589
	Fomalhaut E.	63 26 48	2655	61 49 8	2679	60 12 0	2704	58 35 25	2729
	α Pegasi E.	81 45 20	2852	80 11 59	2871	78 39 3	2893	77 6 35	2916
	Mars E.	101 49 32	2680	100 12 25	2698	98 35 42	2714	96 59 21	2731
25	Saturn W.	99 28 59	2556	101 8 54	2574	102 48 25	2591	104 27 33	2607
	Spica π W.	81 56 44	2589	83 35 54	2606	85 14 41	2623	86 53 5	2640
	Antares W.	36 8 32	2631	37 46 45	2642	39 24 43	2655	41 2 23	2668
	Fomalhaut E.	50 41 24	2874	49 8 32	2907	47 36 22	2942	46 4 57	2979
	α Pegasi E.	69 31 46	3042	68 2 25	3071	66 33 40	3100	65 5 30	3131
	Mars E.	89 3 23	2821	87 29 22	2838	85 55 43	2856	84 22 28	2874
26	Saturn W.	112 37 29	2692	114 14 20	2708	115 50 49	2724	117 26 57	2740
	Spica π W.	94 59 27	2723	96 35 36	2739	98 11 24	2756	99 46 50	2772
	Antares W.	49 6 18	2736	50 42 10	2751	52 17 42	2765	53 52 56	2779
	Fomalhaut E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	α Pegasi E.	57 54 27	3394	56 30 20	3345	55 7 1	3388	53 44 31	3434
	Mars E.	76 41 53	2962	75 10 52	2980	73 40 14	2997	72 9 57	3014
	α Arietis E.	99 1 51	2827	97 27 58	2842	95 54 24	2858	94 21 11	2872
27	Spica π W.	107 38 46	2851	109 12 8	2865	110 45 12	2880	112 17 56	2894
	Antares W.	61 44 26	2849	63 17 50	2863	64 50 57	2877	66 23 46	2889
	Mars E.	64 43 44	3096	63 15 29	3111	61 47 33	3125	60 19 54	3141
	α Arietis E.	86 39 56	2949	85 8 39	2964	83 37 41	2978	82 7 1	2993
	SUN E.	116 43 19	3163	115 16 26	3178	113 49 51	3194	112 23 35	3209
28	Spica π W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Antares W.	74 3 53	2950	75 35 8	2961	77 6 10	2971	78 36 59	2982
	Mars E.	53 6 5	3211	51 40 9	3223	50 14 27	3236	48 49 0	3248
	α Arietis E.	74 38 16	3065	73 9 23	3079	71 40 48	3092	70 12 29	3106
	SUN E.	105 16 26	3277	103 51 47	3290	102 27 24	3301	101 3 14	3312
29	Antares W.	86 7 54	3028	87 37 32	3036	89 7 0	3044	90 36 18	3051
	Mars E.	41 45 7	3302	40 20 58	3311	38 56 59	3321	37 33 12	3329
	α Arietis E.	62 55 1	3172	61 28 18	3185	60 1 51	3199	58 35 40	3211
	SUN E.	94 5 33	3364	92 42 35	3372	91 19 46	3380	89 57 7	3388
30	Antares W.	98 0 49	3081	99 29 22	3084	100 57 51	3089	102 26 14	3092
	Mars E.	30 36 43	3371	29 13 53	3378	27 51 11	3385	26 28 37	3395
	α Arietis E.	51 28 37	3278	50 4 0	3292	48 39 39	3307	47 15 36	3322
	SUN E.	83 5 53	3419	81 43 58	3423	80 22 8	3428	79 0 23	3431
31	Antares W.	109 47 15	3105	111 15 19	3105	112 43 22	3108	114 11 22	3109
	α Aquilæ W.	65 46 54	3960	66 59 13	3942	68 11 50	3925	69 24 45	3909
	Mars E.	19 38 9	3439	18 16 36	3452	- - -	- - -	- - -	- - -
	α Arietis E.	40 20 6	3412	38 58 3	3437	37 36 28	3463	36 15 22	3493
	SUN E.	72 12 26	3441	70 50 56	3442	69 29 27	3442	68 7 58	3441

CONFIGURATIONS OF THE SATELLITES OF JUPITER

THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

ECLIPSES OF THE SATELLITES OF JUPITER.

THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the **SUN**.

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

THE SATELLITES OF JUPITER

are not visible this Month;

JUPITER being too near to the SUN.

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^h 5050 ^s 48.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D		Days.		
1	-1.1486	-1.1264	-8.5931	-9.4555	^h 21 ^m 20 ^s 45.61	39	120	.329
2	1.1421	1.1347	8.5627	9.4404	21 16 49.70	40	121	.331
3	1.1353	1.1426	8.5296	9.4247	21 12 53.79	41	122	.334
4	-1.1284	-1.1504	-8.4934	-9.4083	21 8 57.88	42	123	.337
5	1.1212	1.1579	8.4535	9.3913	21 5 1.97	43	124	.340
6	1.1137	1.1651	8.4091	9.3736	21 1 6.06	44	125	.342
7	-1.1060	-1.1721	-8.3590	-9.3552	20 57 10.15	45	126	.345
8	1.0981	1.1789	8.3018	9.3360	20 53 14.24	46	127	.348
9	1.0898	1.1854	8.2351	9.3162	20 49 18.33	47	128	.350
0	-1.0813	-1.1917	-8.1555	-9.2955	20 45 22.42	48	129	.353
1	1.0725	1.1978	8.0569	9.2742	20 41 26.51	49	130	.356
2	1.0634	1.2036	7.9278	9.2520	20 37 30.60	50	131	.359
3	-1.0540	-1.2093	-7.7412	-9.2290	20 33 34.69	51	132	.361
4	1.0442	1.2148	-7.4021	9.2052	20 29 38.78	52	133	.364
5	1.0341	1.2200	+6.6902	9.1805	20 25 42.87	53	134	.367
6	-1.0237	-1.2251	+7.5478	-9.1550	20 21 46.96	54	135	.370
7	1.0128	1.2301	7.8195	9.1287	20 17 51.05	55	136	.372
8	1.0016	1.2348	7.9865	9.1015	20 13 55.14	56	137	.375
9	-0.9900	-1.2394	+8.1077	-9.0734	20 9 59.23	57	138	.378
0	0.9779	1.2437	8.2030	9.0446	20 6 3.32	58	139	.381
1	0.9653	1.2480	8.2817	9.0149	20 2 7.41	59	140	.383
2	-0.9523	-1.2520	+8.3488	-8.9846	19 58 11.50	60	141	.386
3	0.9387	1.2559	8.4073	8.9536	19 54 15.59	61	142	.389
4	0.9245	1.2597	8.4591	8.9221	19 50 19.67	62	143	.392
5	-0.9098	-1.2632	+8.5058	-8.8901	19 46 23.76	63	144	.394
6	0.8944	1.2667	8.5481	8.8579	19 42 27.85	64	145	.397
7	0.8784	1.2700	8.5870	8.8260	19 38 31.94	65	146	.400
8	-0.8616	-1.2731	+8.6229	-8.7941	19 34 36.03	66	147	.402
9	0.8440	1.2761	8.6562	8.7629	19 30 40.12	67	148	.405
0	0.8255	1.2790	8.6874	8.7327	19 26 44.21	68	149	.408
1	0.8061	1.2817	8.7166	8.7042	19 22 48.30	69	150	.411
2	-0.7856	-1.2843	+8.7441	-8.6778	19 18 52.39	70	151	.413

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be <i>subt. from</i> added to <i>Apparent Time.</i>
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s
Sun.	1	4 35 19.46	10.235	N. 22 2 1.3	20.18	1 8.32	2 37.35
Mon.	2	4 39 25.09	10.251	22 10 5.6	19.22	1 8.37	2 28.31
Tues.	3	4 43 31.12	10.268	22 17 46.8	18.25	1 8.43	2 18.86
Wed.	4	4 47 37.54	10.283	22 25 4.7	17.26	1 8.48	2 9.01
Thur.	5	4 51 44.34	10.298	22 31 59.0	16.28	1 8.53	1 58.80
Frid.	6	4 55 51.48	10.310	22 38 29.8	15.29	1 8.57	1 48.25
Sat.	7	4 59 58.92	10.323	22 44 36.8	14.30	1 8.62	1 37.40
Sun.	8	5 4 6.68	10.335	22 50 19.9	13.29	1 8.66	1 26.22
Mon.	9	5 8 14.72	10.345	22 55 38.9	12.28	1 8.69	1 14.77
Tues.	10	5 12 23.00	10.355	23 0 33.7	11.27	1 8.73	1 3.09
Wed.	11	5 16 31.52	10.362	23 5 4.2	10.26	1 8.76	0 51.16
Thur.	12	5 20 40.21	10.370	23 9 10.4	9.23	1 8.79	0 39.06
Frid.	13	5 24 49.10	10.377	23 12 52.0	8.21	1 8.82	0 26.75
Sat.	14	5 28 58.14	10.383	23 16 9.1	7.18	1 8.84	0 14.31
Sun.	15	5 33 7.32	10.386	23 19 1.5	6.15	1 8.86	0 1.73
Mon.	16	5 37 16.59	10.390	23 21 29.2	5.13	1 8.87	0 10.95
Tues.	17	5 41 25.96	10.393	23 23 32.2	4.09	1 8.89	0 23.73
Wed.	18	5 45 35.39	10.395	23 25 10.4	3.06	1 8.90	0 36.57
Thur.	19	5 49 44.86	10.396	23 26 23.9	2.03	1 8.90	0 49.45
Frid.	20	5 53 54.36	10.397	23 27 12.5	0.99	1 8.91	1 2.35
Sat.	21	5 58 3.88	10.395	23 27 36.3	0.04	1 8.90	1 15.27
Sun.	22	6 2 13.37	10.394	23 27 35.4	1.08	1 8.90	1 28.18
Mon.	23	6 6 22.82	10.392	23 27 9.6	2.11	1 8.89	1 41.03
Tues.	24	6 10 32.22	10.389	23 26 19.0	3.13	1 8.88	1 53.84
Wed.	25	6 14 41.55	10.384	23 25 3.9	4.17	1 8.87	2 6.57
Thur.	26	6 18 50.77	10.380	23 23 23.8	5.19	1 8.85	2 19.20
Frid.	27	6 22 59.90	10.374	23 21 19.3	6.22	1 8.83	2 31.74
Sat.	28	6 27 8.87	10.368	23 18 50.0	7.24	1 8.80	2 44.12
Sun.	29	6 31 17.70	10.360	23 15 56.3	8.26	1 8.78	2 56.35
Mon.	30	6 35 26.34	10.352	23 12 38.1	9.28	1 8.75	3 8.41
Tues.	31	6 39 34.78		N. 23 8 55.5		1 8.72	3 20.26

* Mean Time of the Semidiameter passing may be found by subtracting 0^h.19 from the *Sidereal*

AT MEAN NOON.

	Days of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
n.	1	4 35 19·91	N. 22 2 2·2	15 47·2	2 37·33	4 37 57·24
n.	2	4 39 25·51	22 10 6·4	15 47·0	2 28·29	4 41 53·80
es.	3	4 43 31·52	22 17 47·5	15 46·9	2 18·84	4 45 50·36
ed.	4	4 47 37·91	22 25 5·3	15 46·8	2 9·00	4 49 46·91
ur.	5	4 51 44·68	22 31 59·6	15 46·7	1 58·79	4 53 43·47
id.	6	4 55 51·79	22 38 30·3	15 46·5	1 48·24	4 57 40·03
t.	7	4 59 59·20	22 44 37·2	15 46·4	1 37·39	5 1 36·59
n.	8	5 4 6·93	22 50 20·2	15 46·3	1 26·21	5 5 33·14
n.	9	5 8 14·94	22 55 39·2	15 46·2	1 14·76	5 9 29·70
es.	10	5 12 23·18	23 0 33·9	15 46·1	1 3·08	5 13 26·26
ed.	11	5 16 31·67	23 5 4·4	15 46·0	0 51·15	5 17 22·82
ur.	12	5 20 40·33	23 9 10·5	15 46·0	0 39·05	5 21 19·38
id.	13	5 24 49·18	23 12 52·1	15 45·9	0 26·75	5 25 15·93
t.	14	5 28 58·18	23 16 9·1	15 45·8	0 14·31	5 29 12·49
n.	15	5 33 7·32	23 19 1·5	15 45·7	0 1·73	5 33 9·05
n.	16	5 37 16·56	23 21 29·2	15 45·7	0 10·95	5 37 5·61
es.	17	5 41 25·89	23 23 32·2	15 45·6	0 23·73	5 41 2·16
ed.	18	5 45 35·28	23 25 10·4	15 45·5	0 36·56	5 44 58·72
ur.	19	5 49 44·72	23 26 23·9	15 45·5	0 49·44	5 48 55·28
id.	20	5 53 54·18	23 27 12·5	15 45·4	1 2·34	5 52 51·84
t.	21	5 58 3·66	23 27 36·3	15 45·4	1 15·26	5 56 48·40
n.	22	6 2 13·12	23 27 35·4	15 45·3	1 28·17	6 0 44·95
n.	23	6 6 22·53	23 27 9·6	15 45·3	1 41·02	6 4 41·51
es.	24	6 10 31·89	23 26 19·1	15 45·2	1 53·82	6 8 38·07
ed.	25	6 14 41·18	23 25 4·0	15 45·2	2 6·55	6 12 34·63
ur.	26	6 18 50·37	23 23 24·0	15 45·2	2 19·18	6 16 31·19
id.	27	6 22 59·46	23 21 19·5	15 45·1	2 31·72	6 20 27·74
t.	28	6 27 8·40	23 18 50·3	15 45·1	2 44·10	6 24 24·30
n.	29	6 31 17·19	23 15 56·7	15 45·1	2 56·33	6 28 20·86
n.	30	6 35 25·80	23 12 38·5	15 45·1	3 8·38	6 32 17·42
es.	31	6 39 34·21	N. 23 8 56·0	15 45·1	3 20·23	6 36 13·98

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	70° 26' 41" 2	S. 0° 56'	0.0062521	14 45.5	14 45.9	54 9.7	54
2	71 24 8.7	0.54	0.0063146	14 46.8	14 48.3	54 14.3	54
3	72 21 35.5	0.50	0.0063750	14 50.4	14 53.0	54 27.6	54
4	73 19 1.5	0.43	0.0064330	14 55.9	14 59.3	54 47.8	55
5	74 16 26.8	0.35	0.0064888	15 2.9	15 6.9	55 13.5	55
6	75 13 51.4	0.23	0.0065421	15 11.0	15 15.1	55 43.1	55
7	76 11 14.9	S. 0° 11'	0.0065930	15 19.5	15 23.9	56 14.3	56
8	77 8 37.8	N. 0° 01'	0.0066415	15 28.2	15 32.4	56 46.1	57
9	78 6 0.0	0.13	0.0066875	15 36.6	15 40.5	57 16.9	57
10	79 3 21.0	0.24	0.0067311	15 44.4	15 47.9	57 45.5	57
11	80 0 41.4	0.32	0.0067724	15 51.4	15 54.7	58 11.4	58
12	80 58 0.6	0.40	0.0068114	15 57.6	16 0.5	58 34.3	58
13	81 55 19.1	0.45	0.0068483	16 3.1	16 5.5	58 54.3	59
14	82 52 36.7	0.45	0.0068832	16 7.6	16 9.4	59 10.8	59
15	83 49 53.5	0.45	0.0069161	16 10.9	16 12.0	59 22.9	59
16	84 47 9.4	0.41	0.0069471	16 12.6	16 12.9	59 29.3	59
17	85 44 24.6	0.34	0.0069764	16 12.5	16 11.6	59 28.7	59
18	86 41 39.0	0.25	0.0070041	16 10.0	16 7.8	59 19.5	59
19	87 38 52.8	0.14	0.0070302	16 5.0	16 1.7	59 1.5	58
20	88 36 6.2	N. 0° 02'	0.0070548	15 57.7	15 53.3	58 34.6	58
21	89 33 19.1	S. 0° 11'	0.0070779	15 48.4	15 43.2	58 0.4	57
22	90 30 31.7	0.23	0.0070996	15 37.8	15 32.2	57 21.5	57
23	91 27 43.8	0.35	0.0071199	15 26.6	15 21.1	56 40.4	56
24	92 24 55.8	0.46	0.0071386	15 15.7	15 10.5	56 0.3	55
25	93 22 7.7	0.54	0.0071558	15 5.7	15 1.3	55 23.5	55
26	94 19 19.5	0.62	0.0071713	14 57.4	14 54.0	54 53.1	54
27	95 16 31.4	0.65	0.0071850	14 51.2	14 49.1	54 30.6	54
28	96 13 43.4	0.67	0.0071970	14 47.7	14 46.9	54 17.6	54
29	97 10 55.5	0.64	0.0072069	14 46.9	14 47.5	54 14.6	54
30	98 8 7.9	0.61	0.0072148	14 48.9	14 50.8	54 21.9	54
31	99 5 20.4	S. 0° 54'	0.0072205	14 53.5	14 56.8	54 38.9	54

MEAN TIME.

THE MOON'S

		THE MOON'S																				
Days of the Week,	Days of the Month.	Longitude.				Latitude.				Age.	Meridian											
		Noon.		Midnight.		Noon.		Midnight.		Noon.	Passage.											
		°	'	°	'	°	'	°	'	d	h	m										
Sun.	1	3	46	20	8	9	42	42	3	S.5	12	54	9	S.5	7	18	5	23	6	20	17	4
Mon.	2	15	39	45	5	21	37	58	7	4	58	23	3	4	46	12	4	24	6	20	58	2
Tues.	3	27	37	48	2	33	39	37	4	4	30	50	6	4	12	23	6	25	6	21	40	4
Wed.	4	39	43	47	9	45	50	37	6	3	50	59	2	3	26	46	7	26	6	22	24	9
Thur.	5	52	0	22	5	58	13	14	7	2	59	58	2	2	30	47	6	27	6	23	12	4
Frid.	6	64	29	25	5	70	49	0	1	1	59	32	1	1	26	30	4	28	6			
Sat.	7	77	12	4	7	83	38	41	0	S.0	52	4	8	S.0	16	39	4	0	1	0	3	2
Sun.	8	90	8	49	9	96	42	29	6	N.0	19	19	0	N.0	55	22	5	1	1	0	57	2
Mon.	9	103	19	38	1	110	0	9	9	1	31	0	8	2	5	42	9	2	1	1	53	4
Tues.	10	116	44	1	0	123	31	4	3	2	38	57	9	3	10	14	5	3	1	2	50	3
Wed.	11	130	21	12	7	137	14	18	8	3	39	2	4	4	4	53	1	4	1	3	46	5
Thur.	12	144	10	13	4	151	8	46	7	4	27	19	8	4	45	58	2	5	1	4	40	9
Frid.	13	158	9	47	2	165	13	2	5	5	0	27	3	5	10	29	8	6	1	5	33	2
Sat.	14	172	18	18	4	179	25	17	9	5	15	52	3	5	16	25	9	7	1	6	23	8
Sun.	15	186	33	42	9	193	43	13	0	5	12	7	6	5	2	58	0	8	1	7	13	6
Mon.	16	200	53	23	9	208	3	50	4	4	49	4	5	4	30	39	4	9	1	8	3	7
Tues.	17	215	14	4	5	222	23	36	5	4	8	0	2	3	41	30	8	10	1	8	54	9
Wed.	18	229	31	56	7	236	38	32	3	3	11	37	9	2	38	53	6	11	1	9	48	1
Thur.	19	243	42	53	8	250	44	30	1	2	3	52	5	1	27	11	7	12	1	10	43	7
Frid.	20	257	42	53	6	264	37	39	7	N.0	49	28	7	N.0	11	21	4	13	1	11	41	1
Sat.	21	271	28	25	1	278	14	53	3	S.0	26	33	7	S.1	3	42	0	14	1	12	38	9
Sun.	22	284	56	49	7	291	34	6	0	1	39	32	0	2	13	35	2	15	1	13	35	6
Mon.	23	298	6	38	1	304	34	26	7	2	45	27	5	3	14	48	7	16	1	14	29	6
Tues.	24	310	57	38	2	317	16	23	6	3	41	21	5	4	4	52	3	17	1	15	20	1
Wed.	25	323	30	57	7	329	41	39	5	4	25	11	6	4	42	12	1	18	1	16	7	1
Thur.	26	335	48	51	4	341	52	59	7	4	55	49	1	5	5	59	7	19	1	16	51	0
Frid.	27	347	54	33	0	353	54	1	5	5	12	43	3	5	15	59	7	20	1	17	32	8
Sat.	28	359	51	57	9	5	48	55	5	5	15	50	4	5	12	17	9	21	1	18	13	4
Sun.	29	11	45	28	9	17	42	12	2	5	5	25	4	4	55	16	5	22	1	18	53	8
Mon.	30	23	39	40	7	29	38	27	8	4	41	55	7	4	25	28	5	23	1	19	35	1
Tues.	31	35	39	6	7	41	42	10	0	S.4	6	2	0	S.3	43	43	4	24	1	20	18	3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
SUNDAY 1.				TUESDAY 3.		
0	^h 0 ^m 22 ^s 8.38	[°] S. 3 ['] 17 ["] 5.0	120.69	0	^h 1 ^m 49 ^s 6.80	[°] N. 6 ['] 25 ["] 21.9
1	0 23 56.49	3 5 0.8	120.81	1	1 50 57.64	6 37 18.7
2	0 25 44.56	2 52 56.0	120.93	2	1 52 48.63	6 49 14.4
3	0 27 32.61	2 40 50.4	121.04	3	1 54 39.77	7 1 8.9
4	0 29 20.63	2 28 44.1	121.15	4	1 56 31.07	7 13 2.1
5	0 31 8.63	2 16 37.2	121.25	5	1 58 22.52	7 24 54.1
6	0 32 56.61	2 4 29.8	121.34	6	2 0 14.14	7 36 44.7
7	0 34 44.58	1 52 21.7	121.43	7	2 2 5.93	7 48 34.0
8	0 36 32.53	1 40 13.1	121.51	8	2 3 57.88	8 0 21.8
9	0 38 20.49	1 28 4.1	121.58	9	2 5 50.01	8 12 8.1
10	0 40 8.44	1 15 54.6	121.65	10	2 7 42.32	8 23 53.0
11	0 41 56.39	1 3 44.7	121.71	11	2 9 34.80	8 35 36.2
12	0 43 44.35	0 51 34.4	121.77	12	2 11 27.47	8 47 17.9
13	0 45 32.32	0 39 23.8	121.82	13	2 13 20.33	8 58 57.9
14	0 47 20.30	0 27 12.9	121.86	14	2 15 13.38	9 10 36.2
15	0 49 8.30	0 15 1.7	121.90	15	2 17 6.62	9 22 12.7
16	0 50 56.31	S. 0 2 50.3	121.93	16	2 19 0.07	9 33 47.4
17	0 52 44.36	N. 0 9 21.3	121.96	17	2 20 53.71	9 45 20.3
18	0 54 32.43	0 21 33.0	121.97	18	2 22 47.55	9 56 51.2
19	0 56 20.53	0 33 44.8	121.99	19	2 24 41.61	10 8 20.2
20	0 58 8.67	0 45 56.7	121.99	20	2 26 35.87	10 19 47.2
21	0 59 56.85	0 58 8.7	121.99	21	2 28 30.35	10 31 12.2
22	1 1 45.08	1 10 20.7	121.99	22	2 30 25.05	10 42 35.0
23	1 3 33.35	N. 1 22 32.6	121.97	23	2 32 19.96	N. 10 53 55.6
MONDAY 2.				WEDNESDAY 4.		
0	1 5 21.67	N. 1 34 44.4	121.95	0	2 34 15.10	N. 11 5 14.1
1	1 7 10.05	1 46 56.1	121.93	1	2 36 10.46	11 16 30.2
2	1 8 58.49	1 59 7.7	121.90	2	2 38 6.06	11 27 44.1
3	1 10 46.99	2 11 19.1	121.86	3	2 40 1.88	11 38 55.6
4	1 12 35.56	2 23 30.2	121.81	4	2 41 57.95	11 50 4.6
5	1 14 24.20	2 35 41.1	121.76	5	2 43 54.25	12 1 11.2
6	1 16 12.92	2 47 51.6	121.70	6	2 45 50.79	12 12 15.2
7	1 18 1.71	3 0 1.8	121.64	7	2 47 47.58	12 23 16.7
8	1 19 50.58	3 12 11.6	121.56	8	2 49 44.62	12 34 15.5
9	1 21 39.54	3 24 21.0	121.48	9	2 51 41.91	12 45 11.6
10	1 23 28.60	3 36 29.9	121.40	10	2 53 39.45	12 56 4.9
11	1 25 17.74	3 48 38.3	121.31	11	2 55 37.25	13 6 55.4
12	1 27 6.98	4 0 46.2	121.21	12	2 57 35.31	13 17 43.1
13	1 28 56.32	4 12 53.4	121.10	13	2 59 33.63	13 28 27.8
14	1 30 45.77	4 25 0.0	120.99	14	3 1 32.22	13 39 9.5
15	1 32 35.33	4 37 6.0	120.87	15	3 3 31.07	13 49 48.2
16	1 34 24.99	4 49 11.2	120.74	16	3 5 30.19	14 0 23.8
17	1 36 14.78	5 1 15.6	120.61	17	3 7 29.58	14 10 56.2
18	1 38 4.68	5 13 19.3	120.47	18	3 9 29.25	14 21 25.4
19	1 39 54.70	5 25 22.1	120.32	19	3 11 29.20	14 31 51.3
20	1 41 44.86	5 37 24.0	120.16	20	3 13 29.42	14 42 13.9
21	1 43 35.14	5 49 25.0	120.00	21	3 15 29.93	14 52 33.0
22	1 45 25.56	6 1 25.0	119.83	22	3 17 30.72	15 2 48.7
23	1 47 16.11	6 13 24.0	119.65	23	3 19 31.79	15 13 0.9
24	1 49 6.80	N. 6 25 21.9		24	3 21 33.16	N. 15 23 9.5

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 5.				SATURDAY 7.			
0	3 21 33.16	N. 15 23 9.5	100.83	0	5 4 43.33	N. 21 58 49.5	58.96
1	3 23 34.81	15 33 14.5	100.21	1	5 6 59.97	22 4 43.3	57.83
2	3 25 36.76	15 43 15.7	99.58	2	5 9 16.91	22 10 30.3	56.68
3	3 27 39.00	15 53 13.2	98.94	3	5 11 34.15	22 16 10.3	55.52
4	3 29 41.54	16 3 6.9	98.29	4	5 13 51.67	22 21 43.4	54.35
5	3 31 44.38	16 12 56.6	97.63	5	5 16 9.49	22 27 9.5	53.17
6	3 33 47.52	16 22 42.5	96.96	6	5 18 27.59	22 32 28.6	51.98
7	3 35 50.96	16 32 24.2	96.28	7	5 20 45.97	22 37 40.5	50.79
8	3 37 54.70	16 42 1.9	95.59	8	5 23 4.63	22 42 45.2	49.58
9	3 39 58.75	16 51 35.5	94.89	9	5 25 23.57	22 47 42.6	48.36
10	3 42 3.11	17 1 4.8	94.18	10	5 27 42.79	22 52 32.8	47.13
11	3 44 7.77	17 10 29.9	93.45	11	5 30 2.28	22 57 15.6	45.90
12	3 46 12.75	17 19 50.6	92.72	12	5 32 22.03	23 1 51.0	44.65
13	3 48 18.04	17 29 6.9	91.97	13	5 34 42.05	23 6 18.9	43.40
14	3 50 23.65	17 38 18.8	91.22	14	5 37 2.33	23 10 39.3	42.13
15	3 52 29.57	17 47 26.1	90.45	15	5 39 22.87	23 14 52.1	40.86
16	3 54 35.80	17 56 28.8	89.67	16	5 41 43.66	23 18 57.2	39.58
17	3 56 42.35	18 5 26.8	88.88	17	5 44 4.70	23 22 54.7	38.29
18	3 58 49.22	18 14 20.1	88.08	18	5 46 25.99	23 26 44.5	36.99
19	4 0 56.40	18 23 8.6	87.27	19	5 48 47.51	23 30 26.4	35.69
20	4 3 3.90	18 31 52.2	86.45	20	5 51 9.27	23 34 0.5	34.37
21	4 5 11.72	18 40 30.9	85.62	21	5 53 31.27	23 37 26.8	33.05
22	4 7 19.86	18 49 4.6	84.77	22	5 55 53.49	23 40 45.1	31.72
23	4 9 28.32	N. 18 57 33.2	83.92	23	5 58 15.94	N. 23 43 55.4	30.39
FRIDAY 6.				SUNDAY 8.			
0	4 11 37.10	N. 19 5 56.8	83.05	0	6 0 38.60	N. 23 46 57.8	29.04
1	4 13 46.20	19 14 15.1	82.18	1	6 3 1.48	23 49 52.0	27.69
2	4 15 55.61	19 22 28.1	81.29	2	6 5 24.57	23 52 38.2	26.33
3	4 18 5.35	19 30 35.9	80.39	3	6 7 47.86	23 55 16.2	24.97
4	4 20 15.41	19 38 38.2	79.48	4	6 10 11.35	23 57 46.0	23.60
5	4 22 25.80	19 46 35.1	78.56	5	6 12 35.03	24 0 7.5	22.22
6	4 24 36.50	19 54 26.4	77.62	6	6 14 58.91	24 2 20.8	20.83
7	4 26 47.52	20 2 12.2	76.68	7	6 17 22.97	24 4 25.8	19.44
8	4 28 58.86	20 9 52.2	75.73	8	6 19 47.21	24 6 22.5	18.04
9	4 31 10.53	20 17 26.6	74.76	9	6 22 11.62	24 8 10.7	16.64
10	4 33 22.51	20 24 55.1	73.78	10	6 24 36.20	24 9 50.5	15.23
11	4 35 34.81	20 32 17.8	72.79	11	6 27 0.95	24 11 21.9	13.82
12	4 37 47.43	20 39 34.6	71.80	12	6 29 25.85	24 12 44.8	12.39
13	4 40 0.37	20 46 45.4	70.78	13	6 31 50.91	24 13 59.2	10.97
14	4 42 13.63	20 53 50.1	69.76	14	6 34 16.11	24 15 5.0	9.54
15	4 44 27.20	21 0 48.7	68.73	15	6 36 41.45	24 16 2.3	8.11
16	4 46 41.09	21 7 41.0	67.69	16	6 39 6.93	24 16 50.9	6.67
17	4 48 55.29	21 14 27.2	66.64	17	6 41 32.54	24 17 30.9	5.23
18	4 51 9.81	21 21 7.0	65.57	18	6 43 58.27	24 18 2.3	3.78
19	4 53 24.63	21 27 40.4	64.50	19	6 46 24.12	24 18 25.0	2.33
20	4 55 39.76	21 34 7.4	63.41	20	6 48 50.07	24 18 39.0	0.88
21	4 57 55.20	21 40 27.8	62.31	21	6 51 16.14	24 18 44.3	0.57
22	5 0 10.94	21 46 41.7	61.21	22	6 53 42.30	24 18 40.8	2.03
23	5 2 26.99	21 52 49.0	60.09	23	6 56 8.56	24 18 28.6	3.49
24	5 4 43.33	N. 21 58 49.5		24	6 58 34.90	N. 24 18 7.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 9.				WEDNESDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	6 58 34.90	N. 24 18 7.6	4.96	0	8 55 27.73	N. 21 10 23.5	
1	7 1 1.32	24 17 37.9	6.42	1	8 57 51.48	21 3 3.4	
2	7 3 27.82	24 16 59.3	7.89	2	9 0 15.07	20 55 35.5	
3	7 5 54.38	24 16 12.0	9.36	3	9 2 38.49	20 48 0.0	
4	7 8 21.01	24 15 15.8	10.83	4	9 5 1.74	20 40 16.7	
5	7 10 47.69	24 14 10.9	12.30	5	9 7 24.82	20 32 25.9	
6	7 13 14.42	24 12 57.0	13.77	6	9 9 47.73	20 24 27.4	
7	7 15 41.20	24 11 34.4	15.25	7	9 12 10.45	20 16 21.5	
8	7 18 8.02	24 10 2.9	16.72	8	9 14 33.00	20 8 8.1	
9	7 20 34.87	24 8 22.6	18.20	9	9 16 55.37	19 59 47.3	
10	7 23 1.74	24 6 33.4	19.67	10	9 19 17.55	19 51 19.2	
11	7 25 28.64	24 4 35.4	21.14	11	9 21 39.55	19 42 43.8	
12	7 27 55.55	24 2 28.5	22.62	12	9 24 1.36	19 34 1.2	
13	7 30 22.47	24 0 12.8	24.09	13	9 26 22.98	19 25 11.4	
14	7 32 49.40	23 57 48.3	25.56	14	9 28 44.41	19 16 14.5	
15	7 35 16.33	23 55 15.0	27.03	15	9 31 5.65	19 7 10.5	
16	7 37 43.24	23 52 32.8	28.50	16	9 33 26.70	18 57 59.6	
17	7 40 10.14	23 49 41.8	29.96	17	9 35 47.55	18 48 41.8	
18	7 42 37.02	23 46 42.0	31.43	18	9 38 8.21	18 39 17.1	
19	7 45 3.88	23 43 33.4	32.89	19	9 40 28.67	18 29 45.6	
20	7 47 30.70	23 40 16.1	34.35	20	9 42 48.94	18 20 7.4	
21	7 49 57.48	23 36 50.0	35.81	21	9 45 9.00	18 10 22.5	
22	7 52 24.22	23 33 15.1	37.26	22	9 47 28.87	18 0 31.0	
23	7 54 50.91	N. 23 29 31.5	38.72	23	9 49 48.54	N. 17 50 32.9	
TUESDAY 10.				THURSDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	7 57 17.55	N. 23 25 39.2	40.17	0	9 52 8.01	N. 17 40 28.4	
1	7 59 44.13	23 21 38.2	41.61	1	9 54 27.28	17 30 17.5	
2	8 2 10.64	23 17 28.6	43.05	2	9 56 46.36	17 20 0.3	
3	8 4 37.08	23 13 10.3	44.49	3	9 59 5.23	17 9 36.8	
4	8 7 3.44	23 8 43.3	45.92	4	10 1 23.91	16 59 7.1	
5	8 9 29.72	23 4 7.8	47.35	5	10 3 42.39	16 48 31.2	
6	8 11 55.92	22 59 23.7	48.77	6	10 6 0.67	16 37 49.3	
7	8 14 22.03	22 54 31.1	50.19	7	10 8 18.75	16 27 1.5	
8	8 16 48.04	22 49 30.0	51.60	8	10 10 36.64	16 16 7.6	
9	8 19 13.96	22 44 20.4	53.01	9	10 12 54.33	16 5 8.0	
10	8 21 39.76	22 39 2.3	54.41	10	10 15 11.82	15 54 2.5	
11	8 24 5.46	22 33 35.9	55.81	11	10 17 29.12	15 42 51.4	
12	8 26 31.05	22 28 1.0	57.20	12	10 19 46.22	15 31 34.6	
13	8 28 56.51	22 22 17.8	58.58	13	10 22 3.13	15 20 12.2	
14	8 31 21.86	22 16 26.3	59.96	14	10 24 19.85	15 8 44.4	
15	8 33 47.07	22 10 26.5	61.33	15	10 26 36.37	14 57 11.1	
16	8 36 12.16	22 4 18.5	62.70	16	10 28 52.71	14 45 32.5	
17	8 38 37.11	21 58 2.3	64.05	17	10 31 8.86	14 33 48.6	
18	8 41 1.93	21 51 38.0	65.41	18	10 33 24.82	14 21 59.5	
19	8 43 26.60	21 45 5.6	66.75	19	10 35 40.60	14 10 5.2	
20	8 45 51.13	21 38 25.1	68.08	20	10 37 56.19	13 58 6.0	
21	8 48 15.51	21 31 36.6	69.41	21	10 40 11.61	13 46 1.7	
22	8 50 39.74	21 24 40.1	70.73	22	10 42 26.84	13 33 52.5	
23	8 53 3.81	21 17 35.7	72.04	23	10 44 41.89	13 21 38.5	
24	8 55 27.73	N. 21 10 23.5		24	10 46 56.77	N. 13 9 19.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 13.				SUNDAY 15.			
	^h ^m ^s	N. [°] ['] ["]	["]		^h ^m ^s	N. [°] ['] ["]	["]
0	10 46 56.77	13 9 19.7	123.91	0	12 32 19.77	2 10 12.1	146.16
1	10 49 11.47	12 56 56.3	124.68	1	12 34 29.76	1 55 35.2	146.30
2	10 51 26.01	12 44 28.2	125.43	2	12 36 39.74	1 40 57.4	146.42
3	10 53 40.37	12 31 55.7	126.17	3	12 38 49.71	1 26 18.8	146.53
4	10 55 54.57	12 19 18.6	126.90	4	12 40 59.69	1 11 39.7	146.63
5	10 58 8.61	12 6 37.2	127.62	5	12 43 9.68	0 56 59.9	146.71
6	11 0 22.48	11 53 51.5	128.33	6	12 45 19.67	0 42 19.6	146.78
7	11 2 36.19	11 41 1.5	129.02	7	12 47 29.68	0 27 38.9	146.84
8	11 4 49.75	11 28 7.4	129.70	8	12 49 39.71	N. 0 12 57.9	146.88
9	11 7 3.15	11 15 9.2	130.36	9	12 51 49.76	S. 0 1 43.4	146.91
10	11 9 16.40	11 2 7.1	131.02	10	12 53 59.83	0 16 24.8	146.92
11	11 11 29.50	10 49 1.0	131.66	11	12 56 9.94	0 31 6.3	146.92
12	11 13 42.45	10 35 51.0	132.29	12	12 58 20.08	0 45 47.9	146.90
13	11 15 55.26	10 22 37.3	132.90	13	13 0 30.26	1 0 29.3	146.87
14	11 18 7.94	10 9 19.9	133.50	14	13 2 40.48	1 15 10.5	146.83
15	11 20 20.48	9 55 58.9	134.09	15	13 4 50.75	1 29 51.5	146.78
16	11 22 32.88	9 42 34.3	134.67	16	13 7 1.07	1 44 32.2	146.71
17	11 24 45.15	9 29 6.3	135.23	17	13 9 11.44	1 59 12.4	146.62
18	11 26 57.30	9 15 34.9	135.78	18	13 11 21.88	2 13 52.2	146.52
19	11 29 9.32	9 2 0.2	136.32	19	13 13 32.37	2 28 31.3	146.41
20	11 31 21.21	8 48 22.3	136.85	20	13 15 42.93	2 43 9.8	146.29
21	11 33 33.00	8 34 41.2	137.36	21	13 17 53.57	2 57 47.5	146.14
22	11 35 44.66	8 20 57.1	137.86	22	13 20 4.27	3 12 24.4	145.99
23	11 37 56.21	N. 8 7 9.9	138.34	23	13 22 15.06	S. 3 27 0.3	145.82
SATURDAY 14.				MONDAY 16.			
	^h ^m ^s	N. [°] ['] ["]	["]		^h ^m ^s	S. [°] ['] ["]	["]
0	11 40 7.66	7 53 19.9	138.81	0	13 24 25.93	3 41 35.2	145.64
1	11 42 19.00	7 39 27.0	139.27	1	13 26 36.89	3 56 9.1	145.44
2	11 44 30.24	7 25 31.4	139.72	2	13 28 47.94	4 10 41.7	145.23
3	11 46 41.39	7 11 33.0	140.15	3	13 30 59.08	4 25 13.1	145.00
4	11 48 52.44	6 57 32.1	140.57	4	13 33 10.32	4 39 43.1	144.76
5	11 51 3.40	6 43 28.7	140.98	5	13 35 21.67	4 54 11.7	144.51
6	11 53 14.28	6 29 22.8	141.37	6	13 37 33.12	5 8 38.7	144.24
7	11 55 25.07	6 15 14.6	141.75	7	13 39 44.68	5 23 4.2	143.96
8	11 57 35.78	6 1 4.1	142.12	8	13 41 56.35	5 37 27.9	143.66
9	11 59 46.43	5 46 51.4	142.47	9	13 44 8.14	5 51 49.9	143.35
10	12 1 57.00	5 32 36.6	142.81	10	13 46 20.05	6 6 10.0	143.02
11	12 4 7.50	5 18 19.8	143.13	11	13 48 32.09	6 20 28.1	142.68
12	12 6 17.94	5 4 1.0	143.44	12	13 50 44.25	6 34 44.1	142.33
13	12 8 28.32	4 49 40.3	143.74	13	13 52 56.54	6 48 58.1	141.96
14	12 10 38.65	4 35 17.9	144.03	14	13 55 8.98	7 3 9.8	141.57
15	12 12 48.93	4 20 53.7	144.30	15	13 57 21.54	7 17 19.3	141.17
16	12 14 59.16	4 6 27.9	144.56	16	13 59 34.26	7 31 26.3	140.76
17	12 17 9.34	3 52 0.5	144.81	17	14 1 47.11	7 45 30.8	140.33
18	12 19 19.49	3 37 31.7	145.04	18	14 4 0.12	7 59 32.8	139.88
19	12 21 29.60	3 23 1.4	145.26	19	14 6 13.27	8 13 32.1	139.42
20	12 23 39.68	3 8 29.9	145.47	20	14 8 26.58	8 27 28.6	138.95
21	12 25 49.73	2 53 57.1	145.66	21	14 10 40.05	8 41 22.3	138.46
22	12 27 59.76	2 39 23.1	145.84	22	14 12 53.68	8 55 13.1	137.96
23	12 30 9.77	2 24 48.1	146.00	23	14 15 7.48	9 9 0.8	137.44
24	12 32 19.77	N. 2 10 12.1		24	14 17 21.44	S. 9 22 45.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
TUESDAY 17.				THURSDAY 19.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	14 17 21.44	S. 9 22 45.5	136.90	0	16 8 27.12	S. 18 53 7.8
1	14 19 35.57	9 36 26.9	136.36	1	16 10 51.20	19 2 34.7
2	14 21 49.88	9 50 5.0	135.80	2	16 13 15.48	19 11 54.3
3	14 24 4.36	10 3 39.8	135.22	3	16 15 39.96	19 21 6.6
4	14 26 19.02	10 17 11.1	134.63	4	16 18 4.64	19 30 11.3
5	14 28 33.86	10 30 38.9	134.02	5	16 20 29.51	19 39 8.9
6	14 30 48.88	10 44 3.0	133.40	6	16 22 54.58	19 47 58.8
7	14 33 4.09	10 57 23.4	132.77	7	16 25 19.83	19 56 41.0
8	14 35 19.49	11 10 40.0	132.12	8	16 27 45.26	20 5 15.6
9	14 37 35.08	11 23 52.7	131.45	9	16 30 10.88	20 13 42.4
10	14 39 50.87	11 37 1.5	130.77	10	16 32 36.68	20 22 1.5
11	14 42 6.85	11 50 6.1	130.08	11	16 35 2.66	20 30 12.7
12	14 44 23.03	12 3 6.6	129.38	12	16 37 28.81	20 38 15.9
13	14 46 39.41	12 16 2.9	128.66	13	16 39 55.13	20 46 11.2
14	14 48 55.99	12 28 54.8	127.92	14	16 42 21.61	20 53 58.5
15	14 51 12.78	12 41 42.3	127.17	15	16 44 48.26	21 1 37.7
16	14 53 29.77	12 54 25.3	126.40	16	16 47 15.06	21 9 8.7
17	14 55 46.97	13 7 3.7	125.62	17	16 49 42.01	21 16 31.5
18	14 58 4.37	13 19 37.4	124.82	18	16 52 9.12	21 23 46.1
19	15 0 21.99	13 32 6.4	124.01	19	16 54 36.37	21 30 52.3
20	15 2 39.82	13 44 30.4	123.19	20	16 57 3.76	21 37 50.2
21	15 4 57.86	13 56 49.6	122.35	21	16 59 31.29	21 44 39.8
22	15 7 16.11	14 9 3.7	121.50	22	17 1 58.95	21 51 20.8
23	15 9 34.58	S. 14 21 12.6	120.63	23	17 4 26.74	S. 21 57 53.4
WEDNESDAY 18.				FRIDAY 20.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	15 11 53.27	S. 14 33 16.4	119.74	0	17 6 54.65	S. 22 4 17.4
1	15 14 12.17	14 45 14.9	118.85	1	17 9 22.68	22 10 32.8
2	15 16 31.28	14 57 7.9	117.93	2	17 11 50.83	22 16 39.6
3	15 18 50.62	15 8 55.5	117.01	3	17 14 19.07	22 22 37.7
4	15 21 10.17	15 20 37.6	116.07	4	17 16 47.42	22 28 27.2
5	15 23 29.94	15 32 14.0	115.12	5	17 19 15.87	22 34 7.9
6	15 25 49.94	15 43 44.7	114.15	6	17 21 44.41	22 39 39.8
7	15 28 10.15	15 55 9.6	113.17	7	17 24 13.03	22 45 2.9
8	15 30 30.58	16 6 28.7	112.18	8	17 26 41.74	22 50 17.1
9	15 32 51.23	16 17 41.7	111.17	9	17 29 10.51	22 55 22.5
10	15 35 12.11	16 28 48.7	110.15	10	17 31 39.36	23 0 19.0
11	15 37 33.20	16 39 49.6	109.11	11	17 34 8.26	23 5 6.6
12	15 39 54.51	16 50 44.3	108.07	12	17 36 37.23	23 9 45.2
13	15 42 16.04	17 1 32.7	107.01	13	17 39 6.24	23 14 14.8
14	15 44 37.80	17 12 14.7	105.93	14	17 41 35.29	23 18 35.5
15	15 46 59.77	17 22 50.3	104.84	15	17 44 4.38	23 22 47.1
16	15 49 21.96	17 33 19.4	103.74	16	17 46 33.50	23 26 49.7
17	15 51 44.36	17 43 41.8	102.63	17	17 49 2.65	23 30 43.2
18	15 54 6.98	17 53 57.6	101.50	18	17 51 31.81	23 34 27.6
19	15 56 29.81	18 4 6.6	100.36	19	17 54 0.99	23 38 3.0
20	15 58 52.85	18 14 8.8	99.21	20	17 56 30.17	23 41 29.3
21	16 1 16.11	18 24 4.1	98.05	21	17 58 59.35	23 44 46.4
22	16 3 39.57	18 33 52.4	96.87	22	18 1 28.53	23 47 54.4
23	16 6 3.24	18 43 33.7	95.69	23	18 3 57.69	23 50 53.4
24	16 8 27.12	S. 18 53 7.8		24	18 6 26.83	S. 23 53 43.1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 21.				MONDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	18 6 26.83	S. 23 53 43.1	26.77	0	20 3 15.49	S. 23 15 32.2	41.92
1	18 8 55.95	23 56 23.8	25.25	1	20 5 36.03	23 11 20.7	43.17
2	18 11 25.03	23 58 55.3	23.73	2	20 7 56.27	23 7 1.6	44.41
3	18 13 54.07	24 1 17.6	22.20	3	20 10 16.20	23 2 35.2	45.64
4	18 16 23.07	24 3 30.9	20.68	4	20 12 35.83	22 58 1.3	46.86
5	18 18 52.01	24 5 34.9	19.16	5	20 14 55.14	22 53 20.1	48.07
6	18 21 20.89	24 7 29.9	17.64	6	20 17 14.14	22 48 31.7	49.27
7	18 23 49.70	24 9 15.8	16.12	7	20 19 32.83	22 43 36.1	50.46
8	18 26 18.44	24 10 52.5	14.61	8	20 21 51.20	22 38 33.3	51.64
9	18 28 47.09	24 12 20.1	13.09	9	20 24 9.25	22 33 23.4	52.81
10	18 31 15.67	24 13 38.7	11.58	10	20 26 26.98	22 28 6.6	53.97
11	18 33 44.14	24 14 48.2	10.07	11	20 28 44.38	22 22 42.8	55.12
12	18 36 12.52	24 15 48.6	8.56	12	20 31 1.45	22 17 12.1	56.25
13	18 38 40.79	24 16 39.9	7.06	13	20 33 18.20	22 11 34.6	57.38
14	18 41 8.94	24 17 22.3	5.56	14	20 35 34.61	22 5 50.3	58.49
15	18 43 36.98	24 17 55.6	4.06	15	20 37 50.69	21 59 59.4	59.59
16	18 46 4.88	24 18 19.9	2.56	16	20 40 6.43	21 54 1.8	60.69
17	18 48 32.66	24 18 35.3	1.07	17	20 42 21.84	21 47 57.7	61.77
18	18 51 0.29	24 18 41.8	0.41	18	20 44 36.92	21 41 47.1	62.84
19	18 53 27.78	24 18 39.3	1.89	19	20 46 51.65	21 35 30.0	63.90
20	18 55 55.11	24 18 27.9	3.37	20	20 49 6.05	21 29 6.6	64.95
21	18 58 22.29	24 18 7.7	4.84	21	20 51 20.10	21 22 36.9	65.99
22	19 0 49.30	24 17 38.6	6.31	22	20 53 33.81	21 16 1.0	67.01
23	19 3 16.15	S. 24 17 0.8	7.77	23	20 55 47.18	S. 21 9 18.9	68.03
SUNDAY 22.				TUESDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	19 5 42.81	S. 24 16 14.1	9.23	0	20 58 0.21	S. 21 2 30.8	69.04
1	19 8 9.29	24 15 18.7	10.68	1	21 0 12.91	20 55 36.5	70.03
2	19 10 35.58	24 14 14.7	12.12	2	21 2 25.25	20 48 36.4	71.01
3	19 13 1.68	24 13 1.9	13.56	3	21 4 37.24	20 41 30.3	71.98
4	19 15 27.58	24 11 40.6	14.99	4	21 6 48.89	20 34 18.5	72.94
5	19 17 53.27	24 10 10.6	16.41	5	21 9 0.20	20 27 0.8	73.89
6	19 20 18.76	24 8 32.1	17.83	6	21 11 11.16	20 19 37.5	74.82
7	19 22 44.02	24 6 45.1	19.24	7	21 13 21.78	20 12 8.5	75.75
8	19 25 9.06	24 4 49.7	20.64	8	21 15 32.06	20 4 34.0	76.66
9	19 27 33.88	24 2 45.9	22.04	9	21 17 41.99	19 56 54.1	77.57
10	19 29 58.46	24 0 33.6	23.42	10	21 19 51.58	19 49 8.6	78.46
11	19 32 22.80	23 58 13.1	24.80	11	21 22 0.82	19 41 17.9	79.34
12	19 34 46.90	23 55 44.3	26.17	12	21 24 9.72	19 33 21.8	80.21
13	19 37 10.75	23 53 7.2	27.53	13	21 26 18.28	19 25 20.5	81.07
14	19 39 34.35	23 50 22.0	28.89	14	21 28 26.50	19 17 14.1	81.92
15	19 41 57.70	23 47 28.7	30.23	15	21 30 34.38	19 9 2.6	82.76
16	19 44 20.78	23 44 27.3	31.57	16	21 32 41.93	19 0 46.1	83.58
17	19 46 43.59	23 41 17.9	32.89	17	21 34 49.13	18 52 24.6	84.40
18	19 49 6.13	23 38 0.5	34.21	18	21 36 56.00	18 43 58.2	85.20
19	19 51 28.40	23 34 35.3	35.52	19	21 39 2.53	18 35 26.9	86.00
20	19 53 50.39	23 31 2.1	36.82	20	21 41 8.73	18 26 50.9	86.78
21	19 56 12.10	23 27 21.2	38.11	21	21 43 14.60	18 18 10.2	87.56
22	19 58 33.52	23 23 32.5	39.39	22	21 45 20.13	18 9 24.9	88.32
23	20 0 54.65	23 19 36.2	40.66	23	21 47 25.34	18 0 35.0	89.07
24	20 3 15.49	S. 23 15 32.2		24	21 49 30.22	S. 17 51 40.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 25.				FRIDAY 27.			
0	^h 21 ^m 49 ^s 30 ²²	S. 17° 51' 40 ⁶	89 ⁸²	0	^h 23 ^m 23 ^s 46 ⁸⁴	S. 9° 34' 38 ⁴	11 ¹¹
1	21 51 34 ⁷⁷	17 42 41 ⁷	90 ⁵⁵	1	23 25 38 ⁹⁰	9 23 11 ⁹	11 ¹¹
2	21 53 39 ⁰⁰	17 33 38 ⁴	91 ²⁷	2	23 27 30 ⁷⁸	9 11 43 ⁵	11 ¹¹
3	21 55 42 ⁹¹	17 24 30 ⁸	91 ⁹⁸	3	23 29 22 ⁴⁸	9 0 13 ³	11 ¹¹
4	21 57 46 ⁵⁰	17 15 18 ⁹	92 ⁶⁸	4	23 31 14 ⁰²	8 48 41 ⁴	11 ¹¹
5	21 59 49 ⁷⁶	17 6 2 ⁸	93 ³⁷	5	23 33 5 ³⁸	8 37 7 ⁶	11 ¹¹
6	22 1 52 ⁷¹	16 56 42 ⁶	94 ⁰⁵	6	23 34 56 ⁵⁹	8 25 32 ²	11 ¹¹
7	22 3 55 ³⁵	16 47 18 ³	94 ⁷²	7	23 36 47 ⁶³	8 13 55 ²	11 ¹¹
8	22 5 57 ⁶⁸	16 37 50 ⁰	95 ³⁸	8	23 38 38 ⁵¹	8 2 16 ⁵	11 ¹¹
9	22 7 59 ⁶⁹	16 28 17 ⁷	96 ⁰³	9	23 40 29 ²⁵	7 50 36 ²	11 ¹¹
10	22 10 1 ⁴⁰	16 18 41 ⁵	96 ⁶⁷	10	23 42 19 ⁸³	7 38 54 ⁵	11 ¹¹
11	22 12 2 ⁸⁰	16 9 1 ⁵	97 ³⁰	11	23 44 10 ²⁸	7 27 11 ²	11 ¹¹
12	22 14 3 ⁹⁰	15 59 17 ⁶	97 ⁹²	12	23 46 0 ⁵⁸	7 15 26 ⁵	11 ¹¹
13	22 16 4 ⁷⁰	15 49 30 ¹	98 ⁵³	13	23 47 50 ⁷⁵	7 3 40 ⁴	11 ¹¹
14	22 18 5 ²⁰	15 39 38 ⁹	99 ¹⁴	14	23 49 40 ⁷⁸	6 51 52 ⁹	11 ¹¹
15	22 20 5 ⁴¹	15 29 44 ¹	99 ⁷³	15	23 51 30 ⁶⁹	6 40 4 ¹	11 ¹¹
16	22 22 5 ³³	15 19 45 ⁷	100 ³¹	16	23 53 20 ⁴⁷	6 28 14 ⁰	11 ¹¹
17	22 24 4 ⁹⁶	15 9 43 ⁸	100 ⁸⁹	17	23 55 10 ¹⁴	6 16 22 ⁷	11 ¹¹
18	22 26 4 ³⁰	14 59 38 ⁵	101 ⁴⁵	18	23 56 59 ⁶⁸	6 4 30 ²	11 ¹¹
19	22 28 3 ³⁵	14 49 29 ⁸	102 ⁰¹	19	23 58 49 ¹¹	5 52 36 ⁴	11 ¹¹
20	22 30 2 ¹³	14 39 17 ⁸	102 ⁵⁵	20	0 0 38 ⁴³	5 40 41 ⁶	11 ¹¹
21	22 32 0 ⁶³	14 29 2 ⁴	103 ⁰⁹	21	0 2 27 ⁶⁵	5 28 45 ⁷	11 ¹¹
22	22 33 58 ⁸⁵	14 18 43 ⁹	103 ⁶²	22	0 4 16 ⁷⁷	5 16 48 ⁷	11 ¹¹
23	22 35 56 ⁸⁰	S. 14° 8' 22 ²	104 ¹⁴	23	0 6 5 ⁷⁹	S. 5° 4' 50 ⁷	11 ¹¹
THURSDAY 26.				SATURDAY 28.			
0	22 37 54 ⁴⁸	S. 13° 57' 57 ³	104 ⁶⁵	0	0 7 54 ⁷²	S. 4° 52' 51 ⁷	11 ¹¹
1	22 39 51 ⁹⁰	13 47 29 ⁴	105 ¹⁵	1	0 9 43 ⁵⁶	4 40 51 ⁸	12 ¹²
2	22 41 49 ⁰⁵	13 36 58 ⁵	105 ⁶⁵	2	0 11 32 ³²	4 28 51 ⁰	12 ¹²
3	22 43 45 ⁹⁵	13 26 24 ⁶	106 ¹³	3	0 13 20 ⁹⁹	4 16 49 ⁴	12 ¹²
4	22 45 42 ⁵⁹	13 15 47 ⁸	106 ⁶¹	4	0 15 9 ⁵⁹	4 4 46 ⁹	12 ¹²
5	22 47 38 ⁹⁸	13 5 8 ²	107 ⁰⁷	5	0 16 58 ¹¹	3 52 43 ⁶	12 ¹²
6	22 49 35 ¹¹	12 54 25 ⁸	107 ⁵³	6	0 18 46 ⁵⁷	3 40 39 ⁶	12 ¹²
7	22 51 31 ⁰⁰	12 43 40 ⁶	107 ⁹⁸	7	0 20 34 ⁹⁶	3 28 34 ⁸	12 ¹²
8	22 53 26 ⁶⁵	12 32 52 ⁷	108 ⁴³	8	0 22 23 ²⁹	3 16 29 ⁴	12 ¹²
9	22 55 22 ⁰⁶	12 22 2 ¹	108 ⁸⁶	9	0 24 11 ⁵⁶	3 4 23 ⁴	12 ¹²
10	22 57 17 ²³	12 11 9 ⁰	109 ²⁸	10	0 25 59 ⁷⁸	2 52 16 ⁷	12 ¹²
11	22 59 12 ¹⁷	12 0 13 ³	109 ⁷⁰	11	0 27 47 ⁹⁵	2 40 9 ⁵	12 ¹²
12	23 1 6 ⁸⁸	11 49 15 ¹	110 ¹¹	12	0 29 36 ⁰⁸	2 28 1 ⁷	12 ¹²
13	23 3 1 ³⁷	11 38 14 ⁴	110 ⁵¹	13	0 31 24 ¹⁷	2 15 53 ⁴	12 ¹²
14	23 4 55 ⁶³	11 27 11 ³	110 ⁹⁰	14	0 33 12 ²²	2 3 44 ⁷	12 ¹²
15	23 6 49 ⁶⁸	11 16 5 ⁹	111 ²⁹	15	0 35 0 ²⁴	1 51 35 ⁶	12 ¹²
16	23 8 43 ⁵¹	11 4 58 ²	111 ⁶⁷	16	0 36 48 ²²	1 39 26 ¹	12 ¹²
17	23 10 37 ¹³	10 53 48 ¹	112 ⁰⁴	17	0 38 36 ¹⁹	1 27 16 ²	12 ¹²
18	23 12 30 ⁵⁴	10 42 35 ⁹	112 ⁴⁰	18	0 40 24 ¹³	1 15 6 ⁰	12 ¹²
19	23 14 23 ⁷⁵	10 31 21 ⁵	112 ⁷⁶	19	0 42 12 ⁰⁶	1 2 55 ⁵	12 ¹²
20	23 16 16 ⁷⁵	10 20 5 ⁰	113 ¹⁰	20	0 43 59 ⁹⁸	0 50 44 ⁸	12 ¹²
21	23 18 9 ⁵⁶	10 8 46 ⁴	113 ⁴⁴	21	0 45 47 ⁸⁹	0 38 33 ⁹	12 ¹²
22	23 20 2 ¹⁸	9 57 25 ⁷	113 ⁷⁸	22	0 47 35 ⁷⁹	0 26 22 ⁸	12 ¹²
23	23 21 54 ⁶⁰	9 46 3 ⁰	114 ¹¹	23	0 49 23 ⁶⁹	0 14 11 ⁶	12 ¹²
24	23 23 46 ⁸⁴	S. 9° 34' 38 ⁴			0 51 11 ⁶⁰	S. 0° 2' 0 ³	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 29.				MONDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	0 51 11.60	S. 0 2 0.3	121.90	0	1 34 33.00	N. 4 49 26.5	120.32
1	0 52 59.51	N. 0 10 11.1	121.90	1	1 36 22.31	5 1 28.4	120.17
2	0 54 47.44	0 22 22.5	121.90	2	1 38 11.74	5 13 29.4	120.02
3	0 56 35.38	0 34 33.9	121.89	3	1 40 1.27	5 25 29.6	119.87
4	0 58 23.34	0 46 45.2	121.88	4	1 41 50.92	5 37 28.8	119.70
5	1 0 11.32	0 58 56.5	121.86	5	1 43 40.69	5 49 27.0	119.53
6	1 1 59.34	1 11 7.6	121.83	6	1 45 30.59	6 1 24.1	119.35
7	1 3 47.38	1 23 18.6	121.80	7	1 47 20.61	6 13 20.3	119.17
8	1 5 35.46	1 35 29.4	121.76	8	1 49 10.77	6 25 15.2	118.97
9	1 7 23.59	1 47 40.0	121.72	9	1 51 1.06	6 37 9.1	118.78
10	1 9 11.75	1 59 50.3	121.67	10	1 52 51.49	6 49 1.7	118.57
11	1 10 59.96	2 12 0.3	121.61	11	1 54 42.07	7 0 53.2	118.36
12	1 12 48.23	2 24 10.0	121.55	12	1 56 32.79	7 12 43.3	118.14
13	1 14 36.55	2 36 19.3	121.48	13	1 58 23.67	7 24 32.1	117.91
14	1 16 24.94	2 48 28.2	121.41	14	2 0 14.70	7 36 19.6	117.67
15	1 18 13.39	3 0 36.7	121.33	15	2 2 5.89	7 48 5.6	117.43
16	1 20 1.91	3 12 44.6	121.24	16	2 3 57.25	7 59 50.2	117.19
17	1 21 50.50	3 24 52.1	121.15	17	2 5 48.77	8 11 33.3	116.93
18	1 23 39.17	3 36 59.0	121.05	18	2 7 40.47	8 23 14.9	116.67
19	1 25 27.91	3 49 5.3	120.94	19	2 9 32.34	8 34 54.9	116.40
20	1 27 16.75	4 1 10.9	120.83	20	2 11 24.39	8 46 33.3	116.12
21	1 29 5.67	4 13 15.9	120.71	21	2 13 16.62	8 58 10.1	115.84
22	1 30 54.68	4 25 20.2	120.59	22	2 15 9.04	9 9 45.1	115.55
23	1 32 43.79	4 37 23.7	120.46	23	2 17 1.65	9 21 18.4	115.25
24	1 34 33.00	N. 4 49 26.5		24	2 18 54.45	N. 9 32 49.9	

PHASES OF THE MOON.

● New Moon.....	^d ^h ^m 6 21 56.9
☾ First Quarter.....	14 1 2.1
○ Full Moon.....	20 20 22.3
☾ Last Quarter.....	28 13 57.2

☾ Perigee.....	^d ^h 16 11
☾ Apogee.....	28 19

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	
1	♌ Aquilæ W.	70 37 56	3892	71 51 24	3877	73 5 7	3862	74 19 1	
	Fomalhaut W.	35 4 13	3649	36 21 55	3608	37 40 21	3572	38 59 26	
	Scx E.	66 46 28	3441	65 24 58	3439	64 3 26	3439	62 41 54	
2	♌ Aquilæ W.	80 32 9	3790	81 47 21	3781	83 2 43	3770	84 18 16	
	Fomalhaut W.	45 43 5	3408	47 5 13	3386	48 27 45	3366	49 50 46	
	Scx E.	55 53 12	3416	54 31 14	3412	53 9 11	3407	51 47 4	
3	♌ Aquilæ W.	90 38 8	3725	91 54 29	3719	93 10 56	3713	94 27 25	
	Fomalhaut W.	56 50 28	3262	58 15 24	3247	59 40 37	3231	61 6 5	
	Mars W.	- - -	-	- - -	-	- - -	-	- - -	
	Scx E.	44 54 32	3367	43 31 38	3359	42 8 35	3351	40 45 23	
4	Fomalhaut W.	68 17 58	3143	69 45 9	3135	71 12 36	3123	72 40 18	
	♌ Pegasi W.	- - -	-	- - -	-	- - -	-	- - -	
	Mars W.	20 7 53	3212	21 32 25	3265	22 57 18	3248	24 22 30	
	Scx E.	33 46 53	3293	32 22 39	3243	30 58 13	3278	29 33 36	
5	Fomalhaut W.	80 2 38	3043	81 31 50	3037	83 1 17	3026	84 30 51	
	♌ Pegasi W.	63 47 27	3345	65 9 59	3364	66 32 57	3341	67 56 2	
	Mars W.	31 32 54	3163	32 59 47	3150	34 26 56	3137	35 54 2	
8	Saturn E.	93 49 6	2624	92 10 44	2615	90 32 9	2605	88 53 2	
9	Scx W.	25 16 11	2470	26 49 9	2460	28 22 19	2451	29 55 4	
	Regulus E.	44 11 56	2509	42 32 19	2563	40 52 53	2556	39 12 3	
	Saturn E.	80 36 19	2532	78 56 18	2544	77 16 6	2535	75 35 4	
	Spica ♀ E.	98 14 53	2577	96 35 27	2565	94 55 48	2560	93 15 5	
10	Scx W.	37 45 25	2795	39 19 55	2790	40 54 36	2782	42 29 2	
	Venus W.	- - -	-	- - -	-	- - -	-	- - -	
	Regulus E.	30 51 5	2525	29 10 31	2524	27 29 51	2523	25 49 1	
	Saturn E.	67 10 56	2489	65 29 27	2482	63 47 48	2474	62 5 5	
	Spica ♀ E.	84 53 56	2512	83 13 6	2505	81 31 53	2497	79 50 3	
11	Scx W.	50 26 18	2730	52 2 10	2730	53 38 10	2722	55 14 2	
	Venus W.	25 52 50	2425	27 26 46	2417	29 0 52	2409	30 35	
	Pollux W.	19 35 7	2535	21 15 30	2513	22 36 25	2494	24 37 4	
	Saturn E.	53 34 28	2434	51 51 42	2423	50 8 48	2422	48 25 4	
	Spica ♀ E.	71 21 53	2458	69 39 41	2453	67 57 22	2448	66 14 5	
	Antares E.	117 16 15	2458	115 34 0	2449	113 51 35	2442	112 9	
12	Scx W.	63 17 28	2643	64 54 31	2677	66 31 42	2670	68 9	
	Venus W.	35 28 37	2709	40 3 45	2703	41 39 1	2757	43 14 2	
	Pollux W.	33 9 37	2417	34 52 48	2408	36 36 12	2399	38 19 4	
	Saturn E.	39 48 30	2390	38 4 41	2385	36 20 45	2380	34 36 4	
	Spica ♀ E.	57 49 49	2413	55 57 41	2413	54 14 27	2411	52 31	
	Antares E.	103 33 36	2401	101 50 3	2392	100 6 22	2389	98 22 3	
13	Scx W.	76 17 41	2656	77 55 47	2653	79 34 1	2625	81 12 2	
	Venus W.	51 13 26	2722	52 49 37	2717	54 25 55	2711	56 2 2	
	Pollux W.	47 0 36	2353	48 45 15	2345	50 30 4	2343	52 15	
	Saturn E.	25 55 12	2312	24 10 43	2302	22 20 13	2362	20 41 4	
	Spica ♀ E.	43 53 33	2358	42 9 55	2398	40 20 17	2398	38 42 3	
	Antares E.	89 41 21	2357	87 56 44	2352	86 12 0	2347	84 27 4	

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
1	α Aquilæ W.	75 33 17	3837	76 47 41	3823	78 2 19	3813	79 17 8	3801
	Fomalhaut W.	40 19 7	3508	41 39 22	3480	43 0 8	3455	44 21 23	3431
	SUN E.	61 20 15	3432	59 58 35	3430	58 36 52	3425	57 15 4	3422
2	α Aquilæ W.	85 33 57	3753	86 49 48	3746	88 5 47	3738	89 21 54	3731
	Fomalhaut W.	51 13 57	3329	52 37 35	3312	54 1 33	3294	55 25 51	3278
	SUN E.	50 24 47	3395	49 2 25	3388	47 39 55	3382	46 17 18	3374
3	α Aquilæ W.	95 44 6	3705	97 0 48	3701	98 17 34	3698	99 34 23	3695
	Fomalhaut W.	62 31 57	3203	63 58 3	3189	65 24 25	3176	66 51 3	3162
	Mars W.	- - -	- - -	- - -	- - -	17 19 58	3323	18 43 43	3301
4	SUN E.	39 22 2	3334	37 58 30	3325	36 34 48	3317	35 10 56	3307
	Fomalhaut W.	74 8 16	3097	75 36 29	3085	77 4 57	3073	78 33 40	3061
	α Pegasi W.	58 22 6	3490	59 42 41	3463	61 3 47	3436	62 25 23	3411
5	Mars W.	25 48 0	3217	27 13 49	3204	28 39 54	3189	30 6 16	3176
	SUN E.	28 8 47	3258	26 43 46	3248	25 18 33	3237	23 53 8	3226
	Fomalhaut W.	86 0 53	3003	87 31 2	2993	89 1 24	2981	90 32 0	2971
6	α Pegasi W.	69 20 9	3300	70 44 21	3280	72 8 56	3261	73 33 53	3243
	Mars W.	37 22 2	3112	38 49 57	3099	40 18 8	3086	41 46 35	3073
	SUN E.	87 14 21	2588	85 35 9	2579	83 55 45	2569	82 16 8	2561
7	SUN W.	31 29 15	2833	33 3 0	2824	34 36 57	2815	36 11 6	2807
	Regulus E.	37 32 34	2544	35 52 22	2539	34 12 3	2534	32 31 37	2530
	Saturn E.	73 55 6	2520	72 14 20	2512	70 33 23	2504	68 52 15	2496
8	Spica π E.	91 35 56	2543	89 55 42	2535	88 15 18	2527	86 34 42	2520
	SUN W.	44 4 30	2766	45 39 42	2759	47 15 4	2751	48 50 36	2744
	Venus W.	19 38 42	2855	21 11 59	2847	22 45 26	2839	24 19 3	2832
9	Regulus [*] E.	24 8 28	2525	22 27 50	2530	20 47 19	2538	19 6 58	2550
	Saturn E.	60 23 59	2461	58 41 51	2453	56 59 32	2447	55 17 5	2441
	Spica π E.	78 9 10	2484	76 27 34	2477	74 45 49	2471	73 3 55	2465
10	SUN W.	56 50 40	2708	58 27 9	2702	60 3 46	2695	61 40 33	2689
	Venus W.	32 9 32	2796	33 44 5	2789	35 18 47	2782	36 53 38	2776
	Pollux W.	26 19 31	2463	28 1 36	2450	29 44 0	2438	31 26 41	2427
11	Saturn E.	46 42 34	2410	44 59 14	2405	43 15 47	2400	41 32 12	2395
	Spica π E.	64 32 20	2436	62 49 37	2432	61 6 48	2427	59 23 52	2422
	Antares E.	110 26 14	2428	108 43 19	2421	107 0 14	2414	105 16 59	2408
12	SUN W.	69 46 30	2658	71 24 6	2652	73 1 50	2646	74 39 42	2641
	Venus W.	44 49 58	2744	46 25 39	2739	48 1 27	2733	49 37 23	2728
	Pollux W.	40 3 36	2383	41 47 35	2375	43 31 45	2368	45 16 6	2362
13	Saturn E.	32 52 34	2373	31 8 20	2370	29 24 2	2366	27 39 39	2364
	Spica π E.	50 47 44	2405	49 4 16	2402	47 20 44	2400	45 37 10	2398
	Antares E.	96 38 33	2378	94 54 27	2373	93 10 13	2367	91 25 51	2362
14	SUN W.	82 50 50	2615	84 29 25	2610	86 8 7	2605	87 46 55	2600
	Venus W.	57 38 53	2701	59 15 32	2696	60 52 18	2690	62 29 11	2686
	Pollux W.	54 0 7	2331	55 45 22	2326	57 30 44	2321	59 16 13	2316
15	Saturn E.	18 57 16	2367	17 12 54	2375	- - -	- - -	- - -	- - -
	Spica π E.	36 59 3	2402	35 15 31	2405	33 32 4	2410	31 48 44	2417
	Antares E.	82 42 11	2338	80 57 7	2333	79 11 56	2329	77 26 39	2326

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
		° ' "		° ' "		° ' "		° ' "	
14	SUN W.	89 25 50	2596	91 4 51	2591	92 43 58	2587	94 23 1	
	Venus W.	64 6 10	2681	65 43 15	2676	67 20 27	2672	68 57 4	
	Regulus W.	25 12 28	2353	26 57 11	2342	28 42 9	2333	30 27 1	
	Antares E.	75 41 17	2322	73 55 49	2318	72 10 16	2314	70 24 1	
15	SUN W.	102 40 38	2564	104 20 22	2561	106 0 10	2558	107 40	
	Venus W.	77 5 31	2649	78 43 20	2646	80 21 13	2643	81 59 1	
	Regulus W.	39 16 4	2292	41 2 15	2287	42 48 34	2283	44 34 1	
	Antares E.	61 35 22	2299	59 49 21	2297	58 3 17	2295	56 17 1	
	α Aquilæ E.	107 3 6	3057	105 34 4	3040	104 4 41	3026	102 35	
16	SUN W.	116 0 18	2545	117 40 29	2543	119 20 42	2543	121 0 1	
	Venus W.	90 9 45	2629	91 48 0	2628	93 26 17	2626	95 4 1	
	Regulus W.	53 28 23	2264	55 15 16	2262	57 2 12	2260	58 49 1	
	Saturn W.	16 57 7	2305	18 42 59	2295	20 29 6	2287	22 15 1	
	Antares E.	47 26 31	2296	45 40 25	2298	43 54 23	2300	42 8 1	
	α Aquilæ E.	95 3 10	2970	93 32 20	2966	92 1 24	2963	90 30 1	
17	Venus W.	103 16 19	2626	104 54 39	2627	106 32 57	2629	108 11	
	Regulus W.	67 44 24	2257	69 31 27	2257	71 18 30	2259	73 5 1	
	Saturn W.	31 8 37	2267	32 55 25	2266	34 42 14	2266	36 29	
	Antares E.	33 20 7	2336	31 35 0	2346	29 50 8	2359	28 5 1	
	α Aquilæ E.	82 55 46	2978	81 25 6	2987	79 54 37	2996	78 24	
	Fomalhaut E.	115 58 56	2464	114 16 52	2458	112 34 40	2454	110 52	
18	Venus W.	116 21 49	2645	117 59 43	2649	119 37 32	2652	121 15	
	Regulus W.	81 59 55	2272	83 46 36	2275	85 33 12	2279	87 19	
	Saturn W.	45 22 46	2276	47 9 21	2279	48 55 51	2283	50 42	
	Spica ♀ W.	28 28 41	2391	30 12 28	2382	31 56 28	2375	33 40	
	α Aquilæ E.	70 57 5	3092	69 28 46	3116	68 0 56	3141	66 33	
	Fomalhaut E.	102 20 5	2446	100 37 36	2448	98 55 10	2450	97 12	
19	Regulus W.	96 10 25	2310	97 56 8	2318	99 41 41	2325	101 27	
	Saturn W.	59 32 40	2313	61 18 21	2319	63 3 52	2326	64 49	
	Spica ♀ W.	42 22 36	2366	44 7 0	2369	45 51 19	2372	47 35	
	Fomalhaut E.	88 42 12	2479	87 0 29	2486	85 18 56	2493	83 37	
	α Pegasi E.	105 42 53	2747	104 7 16	2747	102 31 39	2749	100 56	
20	Saturn W.	73 33 10	2375	75 17 20	2385	77 1 16	2395	78 44	
	Spica ♀ W.	56 15 0	2407	57 58 25	2414	59 41 39	2422	61 24	
	Fomalhaut E.	75 14 2	2556	73 34 6	2569	71 54 28	2583	70 15	
	α Pegasi E.	92 59 21	2779	91 24 26	2788	89 49 42	2797	88 15	
21	Saturn W.	87 19 43	2460	89 1 52	2472	90 43 44	2484	92 25	
	Spica ♀ W.	69 56 32	2482	71 38 10	2493	73 19 33	2505	75 0	
	Antares W.	24 20 34	2594	25 59 37	2589	27 38 47	2589	29 17	
	Fomalhaut E.	62 3 56	2683	60 26 53	2702	58 50 16	2724	57 14	
	α Pegasi E.	80 26 34	2878	78 53 47	2895	77 21 22	2913	75 49	
	Mars E.	120 45 44	2693	119 8 55	2706	117 32 23	2718	115 56	
22	Saturn W.	100 48 46	2563	102 28 32	2576	104 8 0	2590	105 47	
	Spica ♀ W.	83 21 58	2580	85 1 20	2593	86 40 25	2607	88 19	
	Antares W.	37 32 47	2617	39 11 19	2626	40 49 39	2635	42 27	

MEAN TIME.
LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
14	SUN W.	96 2 30	2579	97 41 54	2575	99 21 23	2571	101 0 58	2567
	Venus W.	70 35 7	2664	72 12 35	2660	73 50 9	2656	75 27 48	2653
	Regulus W.	32 12 44	2316	33 58 20	2310	35 44 5	2303	37 30 0	2297
	Antares E.	68 38 54	2309	66 53 7	2306	65 7 16	2302	63 21 20	2301
15	SUN W.	109 20 0	2553	110 59 59	2550	112 40 3	2548	114 20 9	2546
	Venus W.	83 37 11	2638	85 15 15	2635	86 53 22	2633	88 31 32	2631
	Regulus W.	46 21 30	2275	48 8 6	2271	49 54 48	2269	51 41 33	2266
	Antares E.	54 31 3	2294	52 44 55	2294	50 58 46	2294	49 12 38	2295
	α Aquilæ E.	101 5 4	3001	99 34 52	2991	98 4 28	2982	96 33 53	2976
16	SUN W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Venus W.	96 42 56	2625	98 21 17	2625	99 59 38	2625	101 37 59	2626
	Regulus W.	60 36 11	2258	62 23 13	2257	64 10 16	2256	65 57 20	2256
	Saturn W.	24 1 52	2276	25 48 27	2272	27 35 7	2270	29 21 50	2268
	Antares E.	40 22 29	2308	38 36 41	2313	36 51 0	2319	35 5 28	2326
	α Aquilæ E.	88 59 25	2962	87 28 25	2964	85 57 27	2968	84 26 34	2972
17	Venus W.	109 49 27	2632	111 27 38	2635	113 5 46	2638	114 43 50	2641
	Regulus W.	74 52 29	2261	76 39 26	2263	78 26 20	2266	80 13 10	2269
	Saturn W.	38 15 52	2268	40 2 39	2269	41 49 24	2270	43 36 7	2273
	Antares E.	26 21 21	2393	24 37 37	2417	22 54 27	2446	21 11 57	2481
	α Aquilæ E.	76 54 15	3021	75 24 28	3035	73 54 58	3052	72 25 50	3071
	Fomalhaut E.	109 9 59	2448	107 27 33	2446	105 45 4	2446	104 2 35	2446
18	Venus W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Regulus W.	89 6 5	2288	90 52 22	2293	92 38 31	2299	94 24 32	2304
	Saturn W.	52 28 35	2292	54 14 47	2296	56 0 53	2301	57 46 51	2307
	Spica ♀ W.	35 24 55	2366	37 9 18	2364	38 53 44	2364	40 38 10	2364
	α Aquilæ E.	65 6 51	3201	63 40 43	3235	62 15 15	3272	60 50 31	3313
	Fomalhaut E.	95 30 28	2457	93 48 14	2461	92 6 6	2466	90 24 5	2472
19	Regulus W.	103 12 16	2341	104 57 16	2348	106 42 5	2357	108 26 41	2365
	Saturn W.	66 34 23	2341	68 19 23	2349	70 4 11	2358	71 48 46	2366
	Spica ♀ W.	49 19 43	2381	51 3 45	2387	52 47 39	2392	54 31 25	2400
	Fomalhaut E.	81 56 23	2512	80 15 26	2522	78 34 43	2532	76 54 14	2544
	α Pegasi E.	99 20 32	2754	97 45 4	2759	96 9 42	2764	94 34 27	2771
20	Saturn W.	80 28 26	2415	82 11 39	2426	83 54 36	2437	85 37 18	2449
	Spica ♀ W.	63 7 31	2441	64 50 7	2450	66 32 30	2461	68 14 38	2471
	Fomalhaut E.	68 36 11	2613	66 57 33	2629	65 19 17	2646	63 41 24	2664
	α Pegasi E.	86 40 54	2820	85 6 52	2834	83 33 8	2847	81 59 41	2862
21	Saturn W.	94 6 36	2510	95 47 36	2522	97 28 18	2536	99 8 41	2549
	Spica ♀ W.	76 41 30	2529	78 22 3	2541	80 2 19	2554	81 42 17	2567
	Antares W.	30 57 5	2591	32 36 12	2596	34 15 12	2602	35 54 4	2609
	Fomalhaut E.	55 38 29	2769	54 3 21	2794	52 28 45	2821	50 54 44	2848
	α Pegasi E.	74 17 41	2953	72 46 29	2973	71 15 42	2996	69 45 24	3019
	Mars E.	114 20 9	2744	112 44 27	2757	111 9 3	2771	109 33 57	2785
22	Saturn W.	107 25 58	2618	109 4 28	2632	110 42 39	2646	112 20 31	2661
	Spica ♀ W.	89 57 38	2635	91 35 46	2648	93 13 36	2663	94 51 6	2677
	Antares W.	44 5 39	2656	45 43 18	2666	47 20 43	2679	48 57 51	2690

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	
		° ' "		° ' "		° ' "		° ' "	
22	Fomalhaut E.	49 21 18	2878	47 48 31	2909	46 16 23	2942	44 44 57	
	α Pegasi E.	68 15 35	3044	66 46 17	3070	65 17 31	3097	63 49 18	
	Mars E.	107 59 9	2798	106 24 39	2812	104 50 27	2827	103 16 34	
	α Arietis E.	110 22 7	2698	108 45 24	2709	107 8 56	2720	105 32 43	
23	Saturn W.	113 58 3	2675	115 35 17	2690	117 12 11	2705	118 48 43	
	Spica η W.	96 28 17	2691	98 5 9	2705	99 41 42	2720	101 17 56	
	Antares W.	50 34 44	2702	52 11 21	2714	53 47 42	2727	55 23 40	
	Mars E.	95 31 50	2914	93 59 49	2930	92 28 8	2944	90 56 40	
	α Arietis E.	97 35 31	2794	96 0 55	2807	94 26 36	2821	92 52 33	
	Jupiter E.	120 35 23	2735	118 59 30	2749	117 23 55	2763	115 48 39	
24	Spica η W.	109 14 18	2806	110 48 38	2821	112 22 39	2835	113 56 29	
	Antares W.	63 19 54	2803	64 54 18	2816	66 28 25	2829	68 2 13	
	Mars E.	83 24 29	3032	81 54 56	3047	80 25 41	3061	78 56 43	
	α Arietis E.	85 6 57	2905	83 34 44	2920	82 2 50	2933	80 31 13	
	Jupiter E.	107 56 53	2848	106 23 27	2861	104 50 18	2875	103 17 27	
25	Antares W.	75 47 28	2902	77 19 44	2914	78 51 45	2925	80 23 33	
	Mars E.	71 36 7	3143	70 8 49	3154	68 41 45	3168	67 14 57	
	α Arietis E.	72 57 46	3021	71 27 59	3035	69 58 30	3050	68 29 19	
	Jupiter E.	95 37 23	2953	94 6 11	2964	92 35 13	2976	91 4 30	
26	Antares W.	87 59 2	2988	89 29 30	2998	90 59 46	3006	92 29 51	
	Mars E.	60 4 24	3235	58 38 56	3246	57 13 41	3254	55 48 30	
	α Arietis E.	61 7 55	3138	59 40 32	3153	58 13 26	3168	56 46 39	
	Jupiter E.	83 34 25	3041	82 5 3	3050	80 35 52	3059	79 6 53	
	Sun E.	118 23 34	3316	116 59 41	3326	115 36 0	3336	114 12 30	
27	Antares W.	99 57 43	3052	101 26 51	3060	102 55 50	3065	104 24 43	
	α Aquilæ W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
	Mars E.	48 45 49	3305	47 21 43	3312	45 57 45	3318	44 33 54	
	α Arietis E.	49 37 22	3265	48 12 29	3281	46 47 55	3300	45 23 43	
	Jupiter E.	71 44 24	3105	70 16 21	3111	68 48 25	3118	67 20 37	
	Sun E.	107 17 32	3386	105 54 59	3392	104 32 33	3399	103 10 15	
28	α Aquilæ W.	67 26 21	3925	68 39 16	3909	69 52 27	3895	71 5 52	
	Fomalhaut W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
	Mars E.	37 36 12	3347	36 12 55	3351	34 49 42	3353	33 26 32	
	α Arietis E.	38 28 39	3433	37 7 0	3462	35 45 53	3493	34 25 21	
	Jupiter E.	60 2 59	3142	58 35 40	3144	57 8 24	3147	55 41 11	
	Sun E.	96 20 9	3424	94 58 20	3428	93 36 35	3430	92 14 52	
29	α Aquilæ W.	77 16 3	3826	78 30 38	3817	79 45 23	3807	81 0 18	
	Fomalhaut W.	42 9 10	3475	43 30 2	3451	44 51 21	3430	46 13 3	
	Mars E.	26 31 19	3364	25 8 21	3365	23 45 25	3365	22 22 29	
	Jupiter E.	48 25 19	3148	46 58 8	3147	45 30 55	3144	44 3 39	
	Sun E.	85 26 32	3431	84 4 50	3431	82 43 8	3427	81 21 22	
30	α Aquilæ W.	87 16 54	3763	88 32 35	3756	89 48 23	3750	91 4 17	
	Fomalhaut W.	- 6 56	3325	- 0 41	3308	55 54 43	3293	57 19 3	
	Jupiter E.	- - -	- - -	- - -	- - -	33 50 57	3113	32 23 3	
	Sun E.	- - -	- - -	- - -	- - -	71 47 10	3393	70 24 45	

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
12	Fomalhaut E.	43 14 17	3017	41 44 25	3057	40 15 23	3103	38 47 17	3152
	α Pegasi E.	62 21 40	3157	60 54 39	3188	59 28 16	3222	58 2 33	3258
	Mars E.	101 43 0	2856	100 9 44	2870	98 36 47	2885	97 4 9	2900
	α Arietis E.	103 56 44	2743	102 21 1	2755	100 45 34	2768	99 10 24	2781
3	Saturn W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Spica ηγ W.	102 53 50	2748	104 29 26	2763	106 4 42	2778	107 39 39	2792
	Antares W.	56 59 33	2753	58 35 3	2765	60 10 17	2778	61 45 14	2791
	Mars E.	89 25 41	2974	87 54 55	2989	86 24 28	3004	84 54 20	3018
	α Arietis E.	91 18 51	2848	89 45 26	2862	88 12 18	2877	86 39 29	2890
	Jupiter E.	114 13 41	2791	112 39 2	2805	111 4 41	2819	109 30 38	2833
4	Spica ηγ W.	115 29 46	2863	117 2 53	2877	118 35 41	2891	120 8 12	2905
	Antares W.	69 35 50	2854	71 9 8	2866	72 42 10	2878	74 14 57	2891
	Mars E.	77 28 3	3088	75 59 39	3102	74 31 32	3116	73 3 42	3129
	α Arietis E.	78 59 55	2962	77 28 55	2977	75 58 14	2992	74 27 51	3006
	Jupiter E.	101 44 53	2902	100 12 36	2914	98 40 35	2928	97 8 51	2940
5	Antares W.	81 55 5	2947	83 26 24	2958	84 57 29	2968	86 28 22	2978
	Mars E.	65 48 23	3191	64 22 3	3203	62 55 57	3214	61 30 4	3225
	α Arietis E.	67 0 26	3079	65 31 51	3095	64 3 35	3109	62 35 36	3124
	Jupiter E.	89 34 1	2999	88 3 47	3010	86 33 46	3021	85 3 59	3031
6	Antares W.	93 59 45	3023	95 29 29	3031	96 59 3	3039	98 28 27	3046
	Mars E.	54 23 43	3273	52 59 0	3282	51 34 27	3290	50 10 4	3297
	α Arietis E.	55 20 11	3199	53 54 0	3215	52 28 8	3231	51 2 36	3247
	Jupiter E.	77 38 3	3076	76 9 24	3084	74 40 55	3092	73 12 35	3099
	Sun E.	112 49 11	3354	111 26 2	3363	110 3 3	3371	108 40 13	3379
7	Antares W.	105 53 27	3076	107 22 6	3080	108 50 40	3086	110 19 7	3089
	α Aquilæ W.	62 37 31	3996	63 49 15	3975	65 1 19	3957	66 13 41	3939
	Mars E.	43 10 10	3330	41 46 33	3334	40 23 1	3339	38 59 34	3343
	α Arietis E.	43 59 54	3339	42 36 27	3359	41 13 24	3383	39 50 48	3407
	Jupiter E.	65 52 55	3128	64 25 19	3132	62 57 48	3136	61 30 22	3138
	Sun E.	101 48 3	3409	100 25 57	3414	99 3 56	3418	97 42 0	3423
28	α Aquilæ W.	72 19 30	3869	73 33 21	3857	74 47 24	3847	76 1 38	3836
	Fomalhaut W.	36 50 43	3589	38 9 29	3556	39 28 51	3526	40 48 46	3500
	Mars E.	32 3 25	3358	30 40 20	3360	29 17 18	3361	27 54 17	3364
	α Arietis E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Jupiter E.	54 13 59	3148	52 46 48	3149	51 19 38	3150	49 52 29	3149
	Sun E.	90 53 11	3431	89 31 30	3433	88 9 51	3433	86 48 12	3432
29	α Aquilæ W.	82 15 21	3791	83 30 33	3784	84 45 52	3776	86 1 19	3768
	Fomalhaut W.	47 35 8	3391	48 57 35	3373	50 20 22	3355	51 43 30	3339
	Mars E.	20 59 35	3369	19 36 43	3371	- - -	- - -	- - -	- - -
	Jupiter E.	42 36 20	3140	41 8 59	3136	39 41 33	3132	38 14 2	3128
	Sun E.	79 59 34	3422	78 37 42	3418	77 15 46	3415	75 53 46	3409
30	α Aquilæ W.	92 20 16	3740	93 36 21	3735	94 52 31	3732	96 8 44	3728
	Fomalhaut W.	58 43 40	3264	60 8 34	3250	61 33 44	3235	62 59 12	3222
	Jupiter E.	30 55 3	3101	29 26 55	3095	27 58 39	3087	26 30 14	3080
	Sun E.	69 2 13	3379	67 39 32	3372	66 16 43	3364	64 53 45	3356

CONFIGURATIONS OF THE SATELLITES OF JUPITER

At 14^h 30^m, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>				<i>Apparent East.</i>			
The SATELLITES are not visible until the 7th day of this month, JUPITER being too near to the SUN.								
7		4.	2.	○				·3
8		4.		·2 1.	○			3.
9		4.			○	·13.	·2	
10		·4		3. 1.	○ 2.			
11		·4	3.	2.	○		1.	
12		·4	·3	·1	○ ·2			
13	·3 ●		·4		○ 1.		2.	
14				2.	·4 ○			·3
15				·2	1. ○		·4	3.
16					○	·1	·2 ³ .	·4
17				1. ³ .	○ 2.			·4
18			3.	2.	○		·1	·4
19	·2 ●		·3	·1	○			4.
20				·3	○ 1.	2.		4.
21				2. ·1	○	·3		4.
22				·2	○	4.		·3
23				4.	○ ·1	·2	3.	
24			4.	1. 3.	○ 2.			
25		4.	3.	2.	○	·1		
26	4.		·3	·1 ·2	○			
27	·4			·3	○ 1.	·2		
28		·4		·1	○	·3		
29		·4		·2	○ 1.			·3
30			·4		○	·2	3.	

This Table represents, at 14^h 30^m after *Mean Noon* of each day, the relative position of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of their motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the *shadow* of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.*

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	7	^{h m s} 11 56 57.4	^{h m s} 17 0 31.8	Im.
	9	6 25 31.0	11 36 4.1	Im.
	11	0 54 7.5	6 11 39.2	Im.
	12	19 22 40.1	0 47 10.5	Im.
	14	13 51 15.9	19 22 45.0	Im.
	16	8 19 47.6	13 58 15.3	Im.
	18	2 48 22.3	8 33 48.6	Im.
	19	21 16 53.4	3 9 18.5	Im.
	21	15 45 27.3	21 44 51.0	Im.
	23	10 13 57.7	16 20 20.1	Im.
	25	4 42 30.5	10 55 51.6	Im.
	26	23 11 0.3	5 31 20.0	Im.
	28	17 39 32.3	0 6 50.6	Im.
	30	12 8 1.5	18 42 18.5	Im.
II.	8	21 27 42.1	2 36 46.8	Im.
	12	10 46 16.7	16 9 22.3	Im.
	16	0 4 16.7	5 41 23.0	Im.
	19	13 22 55.8	19 14 3.0	Im.
	23	2 40 54.9	8 46 2.8	Im.
	26	15 59 40.1	22 18 48.9	Im.
	30	5 17 38.6	11 50 48.2	Im.
II.	13	13 30 37.0	18 58 6.1	Im.
	13	15 39 44.0	21 7 34.3	Em.
	20	17 30 48.0	23 26 32.4	Im.
	20	19 40 12.3	1 36 18.0	Em.
	27	21 31 24.6	3 55 24.5	Im.
	27	23 41 10.4	6 5 31.6	Em.

* The Satellites are not visible until the 7th day of this Month,

Jupiter being too near to the Sun.

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES * BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h m
		7 19 43	8 14 45	8 17 1	8 14 12	8 16 2
		9 14 20	10 9 22	10 11 39	10 8 48	10 10 5
		11 8 57	11 4 0	12 6 16	11 3 23	12 5 3
		12 3 34	13 22 37	13 0 53	13 21 59	13 0
	In	14 22 12	15 17 14	15 19 30	15 16 35	15 18 4
		16 16 49	17 11 51	17 14 7	17 11 10	17 13 1
	the	18 11 26	19 6 28	19 8 45	18 5 46	19 7 5
		20 6 3	20 1 6	20 3 22	20 0 21	20 2 2
		21 0 40	22 19 43	22 21 59	22 18 57	22 21
	Shadow.	23 19 17	24 14 20	24 16 36	24 13 33	24 15 4
		25 13 54	26 8 57	26 11 13	26 8 8	26 10 1
		27 8 32	27 3 34	27 5 50	27 2 44	27 4 5
		28 3 9	29 22 11	29 0 27	29 21 19	29 23 2
		30 21 46				
II.		9 6 7	10 22 20	10 0 57	10 21 51	10 0
	In	12 19 47	14 11 59	14 14 36	14 11 23	14 13
		16 9 25	17 1 38	17 4 15	17 0 55	17 3
	the	19 23 5	21 15 17	21 17 54	21 14 26	21 16
		23 12 43	24 4 56	25 7 33	24 3 58	25 6
	Shadow.	26 2 22	28 18 35	28 21 11	28 17 29	28 19
		30 16 1				
III.	13 21 20	13 23 38	17 11 48	17 14 5	17 9 2	17 11
	20 2 16	20 4 33	24 16 43	24 19 0	24 13 31	24 15
	28 7 11	28 9 28				

* The Satellites are not visible until the 7th day of this Month,
Jupiter being too near to the Sun.

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .505048.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D		Days.		
1	−0.7856	−1.2843	+8.7441	−8.6778	^h 19 ^m 18 ^s 52.39	70	151	.413
2	0.7641	1.2867	8.7701	8.6543	19 14 56.47	71	152	.416
3	0.7412	1.2890	8.7947	8.6344	19 11 0.56	72	153	.419
4	−0.7170	−1.2912	+8.8182	−8.6188	19 7 4.65	73	154	.422
5	0.6912	1.2932	8.8405	8.6085	19 3 8.74	74	155	.424
6	0.6637	1.2951	8.8618	8.6040	18 59 12.83	75	156	.427
7	−0.6342	−1.2969	+8.8822	−8.6056	18 55 16.92	76	157	.430
8	0.6025	1.2986	8.9017	8.6129	18 51 21.00	77	158	.433
9	0.5681	1.3001	8.9205	8.6255	18 47 25.09	78	159	.435
10	−0.5306	−1.3015	+8.9385	−8.6435	18 43 29.18	79	160	.438
11	0.4894	1.3028	8.9559	8.6658	18 39 33.27	80	161	.441
12	0.4438	1.3039	8.9726	8.6919	18 35 37.36	81	162	.444
13	−0.3928	−1.3050	+8.9888	−8.7214	18 31 41.45	82	163	.446
14	0.3348	1.3059	9.0044	8.7534	18 27 45.53	83	164	.449
15	0.2677	1.3067	9.0195	8.7875	18 23 49.62	84	165	.452
16	−0.1883	−1.3073	+9.0341	−8.8231	18 19 53.71	85	166	.454
17	0.0908	1.3079	9.0482	8.8596	18 15 57.80	86	167	.457
18	9.9647	1.3083	9.0620	8.8966	18 12 1.88	87	168	.460
19	−9.7863	−1.3086	+9.0753	−8.9338	18 8 5.97	88	169	.463
20	−9.4781	1.3087	9.0882	8.9708	18 4 10.06	89	170	.465
21	+8.0100	1.3088	9.1008	9.0074	18 0 14.15	90	171	.468
22	+9.5065	−1.3087	+9.1130	−9.0435	17 56 18.24	91	172	.471
23	9.8005	1.3086	9.1249	9.0790	17 52 22.32	92	173	.474
24	9.9741	1.3082	9.1364	9.1139	17 48 26.41	93	174	.476
25	+0.0977	−1.3078	+9.1476	−9.1480	17 44 30.50	94	175	.479
26	0.1937	1.3073	9.1585	9.1814	17 40 34.59	95	176	.482
27	0.2722	1.3066	9.1692	9.2140	17 36 38.68	96	177	.485
28	+0.3385	−1.3058	+9.1796	−9.2458	17 32 42.76	97	178	.487
29	0.3960	1.3049	9.1897	9.2767	17 28 46.85	98	179	.490
30	0.4466	1.3039	9.1996	9.3069	17 24 50.94	99	180	.493
31	+0.4918	−1.3027	+9.2092	−9.3362	17 20 55.03	100	181	.496

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Tues.	1	6 39 34.78	10.343	N.23 8 55.5	10.29	1 8.72	3 20.26	0.
Wed.	2	6 43 43.00	10.331	23 4 48.6	11.30	1 8.68	3 31.89	0.
Thur.	3	6 47 50.95	10.320	23 0 17.4	12.30	1 8.64	3 43.25	0.
Frid.	4	6 51 58.64	10.307	22 55 22.2	13.30	1 8.60	3 54.35	0.
Sat.	5	6 56 6.01	10.294	22 50 3.0	14.30	1 8.56	4 5.13	0.
Sun.	6	7 0 13.07	10.279	22 44 19.9	15.28	1 8.51	4 15.61	0.
Mon.	7	7 4 19.78	10.264	22 38 13.1	16.26	1 8.46	4 25.73	0.
Tues.	8	7 8 26.12	10.247	22 31 42.8	17.24	1 8.41	4 35.48	0.
Wed.	9	7 12 32.06	10.230	22 24 49.0	18.21	1 8.35	4 44.84	0.
Thur.	10	7 16 37.58	10.213	22 17 32.0	19.17	1 8.30	4 53.78	0.
Frid.	11	7 20 42.68	10.193	22 9 51.9	20.14	1 8.24	5 2.30	0.
Sat.	12	7 24 47.32	10.174	22 1 48.9	21.07	1 8.17	5 10.36	0.
Sun.	13	7 28 51.49	10.153	21 53 23.2	22.00	1 8.11	5 17.95	0.
Mon.	14	7 32 55.17	10.133	21 44 35.1	22.94	1 8.04	5 25.06	0.
Tues.	15	7 36 58.35	10.111	21 35 24.5	23.85	1 7.97	5 31.66	0.
Wed.	16	7 41 1.02	10.089	21 25 52.1	24.77	1 7.90	5 37.75	0.
Thur.	17	7 45 3.16	10.067	21 15 57.7	25.66	1 7.83	5 43.31	0.
Frid.	18	7 49 4.76	10.044	21 5 41.9	26.57	1 7.76	5 48.36	0.
Sat.	19	7 53 5.82	10.021	20 55 4.3	27.44	1 7.68	5 52.85	0.
Sun.	20	7 57 6.33	9.999	20 44 5.8	28.31	1 7.60	5 56.79	0.
Mon.	21	8 1 6.31	9.975	20 32 46.3	29.18	1 7.52	6 0.20	0.
Tues.	22	8 5 5.71	9.951	20 21 6.1	30.03	1 7.45	6 3.04	0.
Wed.	23	8 9 4.54	9.928	20 9 5.5	30.87	1 7.37	6 5.30	0.
Thur.	24	8 13 2.82	9.904	19 56 44.7	31.70	1 7.28	6 7.03	0.
Frid.	25	8 17 0.52	9.881	19 44 3.9	32.53	1 7.20	6 8.16	0.
Sat.	26	8 20 57.66	9.856	19 31 3.3	33.33	1 7.11	6 8.74	0.
Sun.	27	8 24 54.21	9.832	19 17 43.3	34.13	1 7.03	6 8.74	0.
Mon.	28	8 28 50.18	9.808	19 4 4.1	34.92	1 6.95	6 8.16	0.
Tues.	29	8 32 45.58	9.784	18 50 6.0	35.70	1 6.86	6 6.99	0.
Wed.	30	8 36 40.40	9.759	18 35 49.1	36.47	1 6.77	6 5.27	0.
Thur.	31	8 40 34.61	9.735	18 21 13.9	37.23	1 6.68	6 2.93	0.
Frid.	32	8 44 28.25		N.18 6 20.5		1 6.60	6 0.02	

* Mean time of the Semidiameter passing may be found by subtracting 0^m.19 from the *Sidereal* Time.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Tues.	1	6 39 34·21	N. 23 8 56·0	15 45·1	3 20·23	6 36 13·98
Wed.	2	6 43 42·39	23 4 49·2	15 45·1	3 31·86	6 40 10·53
Thur.	3	6 47 50·31	23 0 18·1	15 45·1	3 43·22	6 44 7·09
Frid.	4	6 51 57·97	22 55 23·0	15 45·1	3 54·32	6 48 3·65
Sat.	5	6 56 5·31	22 50 3·9	15 45·1	4 5·10	6 52 0·21
Sun.	6	7 0 12·34	22 44 21·0	15 45·1	4 15·58	6 55 56·76
Mon.	7	7 4 19·02	22 38 14·3	15 45·1	4 25·70	6 59 53·32
Tues.	8	7 8 25·33	22 31 44·1	15 45·1	4 35·45	7 3 49·88
Wed.	9	7 12 31·25	22 24 50·4	15 45·2	4 44·81	7 7 46·44
Thur.	10	7 16 36·75	22 17 33·5	15 45·2	4 53·75	7 11 43·00
Frid.	11	7 20 41·82	22 9 53·5	15 45·2	5 2·27	7 15 39·55
Sat.	12	7 24 46·44	22 1 50·7	15 45·3	5 10·33	7 19 36·11
Sun.	13	7 28 50·59	21 53 25·1	15 45·3	5 17·92	7 23 32·67
Mon.	14	7 32 54·25	21 44 37·1	15 45·4	5 25·03	7 27 29·22
Tues.	15	7 36 57·42	21 35 26·7	15 45·5	5 31·64	7 31 25·78
Wed.	16	7 41 0·07	21 25 54·4	15 45·5	5 37·73	7 35 22·34
Thur.	17	7 45 2·19	21 16 0·1	15 45·6	5 43·29	7 39 18·90
Frid.	18	7 49 3·79	21 5 44·4	15 45·7	5 48·34	7 43 15·45
Sat.	19	7 53 4·84	20 55 7·0	15 45·7	5 52·83	7 47 12·01
Sun.	20	7 57 5·34	20 44 8·6	15 45·8	5 56·77	7 51 8·57
Mon.	21	8 1 5·31	20 32 49·2	15 45·9	6 0·19	7 55 5·12
Tues.	22	8 5 4·71	20 21 9·1	15 46·0	6 3·03	7 59 1·68
Wed.	23	8 9 3·53	20 9 8·6	15 46·1	6 5·29	8 2 58·24
Thur.	24	8 13 1·81	19 56 47·9	15 46·2	6 7·02	8 6 54·79
Frid.	25	8 16 59·51	19 44 7·2	15 46·2	6 8·16	8 10 51·35
Sat.	26	8 20 56·65	19 31 6·7	15 46·3	6 8·74	8 14 47·91
Sun.	27	8 24 53·20	19 17 46·8	15 46·4	6 8·74	8 18 44·46
Mon.	28	8 28 49·18	19 4 7·6	15 46·6	6 8·16	8 22 41·02
Tues.	29	8 32 44·58	18 50 9·6	15 46·7	6 7·00	8 26 37·58
Wed.	30	8 36 39·41	18 35 52·8	15 46·8	6 5·28	8 30 34·13
Thur.	31	8 40 33·63	18 21 17·6	15 46·9	6 2·94	8 34 30·69
Frid.	32	8 44 27·28	N. 18 6 24·3	15 47·0	6 0·03	8 38 27·25

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	99 5 20.4	S. 0.54	0.0072205	14 53.5	14 56.8	54 38.9	54 5
2	100 2 33.1	0.45	0.0072238	15 0.5	15 4.8	55 4.7	55 2
3	100 59 46.0	0.35	0.0072247	15 9.5	15 14.4	55 37.6	55 5
4	101 56 59.1	0.23	0.0072232	15 19.7	15 25.1	56 15.2	56 3
5	102 54 12.2	S. 0.10	0.0072190	15 30.5	15 35.9	56 54.8	57 1
6	103 51 25.6	N. 0.01	0.0072123	15 41.1	15 46.1	57 33.8	57 5
7	104 48 39.1	0.13	0.0072029	15 50.8	15 55.1	58 9.2	58 2
8	105 45 52.8	0.21	0.0071910	15 58.9	16 2.2	58 38.9	58 5
9	106 43 6.5	0.29	0.0071765	16 4.9	16 7.1	59 1.1	59
10	107 40 20.1	0.35	0.0071596	16 8.8	16 9.9	59 15.2	59 1
11	108 37 33.9	0.36	0.0071402	16 10.5	16 10.7	59 21.4	59 2
12	109 34 47.8	0.36	0.0071185	16 10.4	16 9.8	59 21.3	59 1
13	110 32 1.7	0.33	0.0070947	16 8.8	16 7.5	59 15.3	59 1
14	111 29 15.7	0.27	0.0070688	16 5.9	16 4.0	59 4.8	58 5
15	112 26 29.8	0.18	0.0070409	16 1.9	15 59.4	58 49.8	58 4
16	113 23 44.1	N. 0.08	0.0070112	15 56.7	15 53.7	58 31.0	58 1
17	114 20 58.5	S. 0.05	0.0069798	15 50.4	15 46.9	58 7.8	57 5
18	115 18 13.3	0.17	0.0069468	15 43.1	15 39.1	57 40.9	57 2
19	116 15 28.4	0.29	0.0069123	15 34.9	15 30.5	57 10.7	56 5
20	117 12 43.9	0.41	0.0068763	15 26.0	15 21.5	56 38.3	56 2
21	118 10 0.0	0.52	0.0068389	15 17.1	15 12.7	56 5.5	55 4
22	119 7 16.8	0.61	0.0068002	15 8.4	15 4.4	55 33.7	55 1
23	120 4 34.1	0.68	0.0067600	15 0.6	14 57.1	55 4.9	54 5
24	121 1 52.4	0.73	0.0067184	14 54.1	14 51.4	54 40.9	54 3
25	121 59 11.4	0.74	0.0066754	14 49.2	14 47.6	54 23.2	54 1
26	122 56 31.5	0.73	0.0066307	14 46.6	14 46.2	54 13.5	54 1
27	123 53 52.4	0.69	0.0065844	14 46.4	14 47.2	54 13.0	54 1
28	124 51 14.5	0.63	0.0065364	14 48.9	14 51.2	54 22.2	54 3
29	125 48 37.6	0.54	0.0064865	14 54.2	14 57.9	54 41.5	54 5
30	126 46 2.0	0.44	0.0064346	15 2.2	15 7.1	55 10.8	55 2
31	127 43 27.3	0.32	0.0063806	15 12.5	15 18.5	55 48.7	56 1
32	128 40 53.8	S. 0.20	0.0063245	15 24.7	15 31.2	56 33.4	56 5

MEAN TIME.

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.				
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d	^h ^m		
Tues.	1	35 39 6.7	41 42 10.0	S. 4 6 2.0	S. 3 43 43.4	24.1	20 18.3		
Wed.	2	47 48 7.5	53 57 25.5	3 18 42.4	2 51 10.4	25.1	21 4.3		
Thur.	3	60 10 30.1	66 27 41.0	2 21 21.0	1 49 29.7	26.1	21 53.8		
Frid.	4	72 49 16.1	79 15 27.9	1 15 55.8	S. 0 41 0.3	27.1	22 46.9		
Sat.	5	85 46 24.6	92 22 9.1	S. 0 5 8.5	N. 0 31 12.8	28.1	23 43.1		
Sun.	6	99 2 37.8	105 47 44.2	N. 1 7 33.4	1 43 21.4	29.1	0		
Mon.	7	112 37 15.0	119 30 50.8	2 18 2.7	2 51 2.9	0.6	0 41.1		
Tues.	8	126 28 10.2	133 28 46.3	3 21 47.6	3 49 44.1	1.6	1 39.0		
Wed.	9	140 32 10.5	147 37 50.4	4 14 21.4	4 35 11.9	2.6	2 35.4		
Thur.	10	154 45 14.3	161 53 50.2	4 51 52.1	5 4 3.6	3.6	3 29.5		
Frid.	11	169 3 6.1	176 12 33.3	5 11 32.4	5 14 11.1	4.6	4 21.3		
Sat.	12	183 21 44.3	190 30 15.1	5 11 56.9	5 4 53.3	5.6	5 11.4		
Sun.	13	197 37 43.8	204 43 51.3	4 53 8.8	4 36 56.9	6.6	6 0.9		
Mon.	14	211 48 22.8	218 51 3.4	4 16 34.6	3 52 24.8	7.6	6 50.9		
Tues.	15	225 51 42.2	232 50 8.5	3 24 52.4	2 54 25.5	8.6	7 42.3		
Wed.	16	239 46 13.0	246 39 47.7	2 21 34.7	1 46 51.9	9.6	8 35.7		
Thur.	17	253 30 44.1	260 18 54.2	N. 1 10 50.7	N. 0 34 4.3	10.6	9 31.1		
Frid.	18	267 4 10.6	273 46 25.2	S. 0 2 54.1	S. 0 39 31.4	11.6	10 27.8		
Sat.	19	280 25 31.8	287 1 21.6	1 15 17.4	1 49 42.7	12.6	11 24.3		
Sun.	20	293 33 50.0	300 2 51.0	2 22 21.3	2 52 49.8	13.6	12 19.2		
Mon.	21	306 28 21.6	312 50 20.4	3 20 47.1	3 45 57.4	14.6	13 11.1		
Tues.	22	319 8 49.1	325 23 51.5	4 8 5.6	4 27 1.7	15.6	13 59.7		
Wed.	23	331 35 34.6	337 44 9.2	4 42 37.7	4 54 49.1	16.6	14 45.2		
Thur.	24	343 49 49.3	349 52 52.2	5 3 32.7	5 8 48.5	17.6	15 28.0		
Frid.	25	355 53 38.6	1 52 31.9	5 10 37.4	5 9 2.0	18.6	16 9.1		
Sat.	26	7 49 58.7	13 46 28.5	5 4 5.9	4 55 54.4	19.6	16 49.5		
Sun.	27	19 42 33.0	25 38 45.1	4 44 33.0	4 30 7.9	20.6	17 30.1		
Mon.	28	31 35 39.4	37 33 53.1	4 12 46.4	3 52 36.4	21.6	18 12.0		
Tues.	29	43 34 2.2	49 36 44.0	3 29 46.6	3 4 27.2	22.6	18 56.1		
Wed.	30	55 42 34.7	61 52 10.8	2 36 49.4	2 7 6.2	23.6	19 43.4		
Thur.	31	68 6 5.2	74 24 49.4	1 35 32.6	S. 1 2 26.2	24.6	20 34.4		
Frid.	32	80 48 50.7	87 18 31.5	S. 0 28 6.1	N. 0 7 3.9	25.6	21 29.0		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 1.				THURSDAY 3.			
0	2 18 54.45	N. 9 32 49.9	114.94	0	3 54 4.36	N. 17 54 7.7	89
1	2 20 47.45	9 44 19.5	114.63	1	3 56 10.88	18 3 6.4	89
2	2 22 40.66	9 55 47.3	114.30	2	3 58 17.53	18 12 0.4	88
3	2 24 34.07	10 7 13.1	113.97	3	4 0 24.53	18 20 49.8	87
4	2 26 27.68	10 18 36.9	113.64	4	4 2 31.87	18 29 34.4	86
5	2 28 21.51	10 29 58.8	113.29	5	4 4 39.55	18 38 14.2	85
6	2 30 15.56	10 41 18.5	112.94	6	4 6 47.57	18 46 49.1	84
7	2 32 9.83	10 52 36.1	112.57	7	4 8 55.94	18 55 19.1	84
8	2 34 4.32	11 3 51.5	112.20	8	4 11 4.66	19 3 44.0	83
9	2 35 59.04	11 15 4.7	111.82	9	4 13 13.72	19 12 3.8	82
10	2 37 53.99	11 26 15.7	111.43	10	4 15 23.13	19 20 18.5	81
11	2 39 49.17	11 37 24.3	111.04	11	4 17 32.88	19 28 27.9	80
12	2 41 44.59	11 48 30.5	110.63	12	4 19 42.99	19 36 32.0	79
13	2 43 40.25	11 59 34.3	110.22	13	4 21 53.45	19 44 30.7	78
14	2 45 36.16	12 10 35.6	109.80	14	4 24 4.26	19 52 24.0	77
15	2 47 32.32	12 21 34.4	109.37	15	4 26 15.41	20 0 11.8	77
16	2 49 28.73	12 32 30.6	108.93	16	4 28 26.92	20 7 54.0	76
17	2 51 25.39	12 43 24.2	108.48	17	4 30 38.78	20 15 30.5	75
18	2 53 22.31	12 54 15.0	108.02	18	4 32 50.99	20 23 1.3	74
19	2 55 19.49	13 5 3.2	107.55	19	4 35 3.55	20 30 26.4	73
20	2 57 16.94	13 15 48.5	107.08	20	4 37 16.46	20 37 45.6	72
21	2 59 14.65	13 26 31.0	106.59	21	4 39 29.72	20 44 58.8	71
22	3 1 12.63	13 37 10.5	106.10	22	4 41 43.33	20 52 6.1	70
23	3 3 10.89	N. 13 47 47.1	105.60	23	4 43 57.29	N. 20 59 7.3	69
WEDNESDAY 2.				FRIDAY 4.			
0	3 5 9.43	N. 13 58 20.7	105.08	0	4 46 11.59	N. 21 6 2.4	68
1	3 7 8.24	14 8 51.2	104.56	1	4 48 26.24	21 12 51.4	67
2	3 9 7.33	14 19 18.6	104.03	2	4 50 41.24	21 19 34.1	66
3	3 11 6.72	14 29 42.7	103.49	3	4 52 56.58	21 26 10.4	64
4	3 13 6.39	14 40 3.7	102.94	4	4 55 12.27	21 32 40.3	63
5	3 15 6.35	14 50 21.3	102.38	5	4 57 28.30	21 39 3.8	62
6	3 17 6.61	15 0 35.5	101.81	6	4 59 44.67	21 45 20.7	61
7	3 19 7.16	15 10 46.4	101.22	7	5 2 1.38	21 51 31.0	60
8	3 21 8.01	15 20 53.7	100.63	8	5 4 18.43	21 57 34.6	59
9	3 23 9.17	15 30 57.5	100.03	9	5 6 35.81	22 3 31.4	58
10	3 25 10.63	15 40 57.7	99.42	10	5 8 53.53	22 9 21.4	57
11	3 27 12.40	15 50 54.3	98.80	11	5 11 11.58	22 15 4.6	56
12	3 29 14.48	16 0 47.1	98.17	12	5 13 29.96	22 20 40.7	54
13	3 31 16.88	16 10 36.1	97.53	13	5 15 48.67	22 26 9.8	53
14	3 33 19.59	16 20 21.3	96.88	14	5 18 7.71	22 31 31.9	52
15	3 35 22.62	16 30 2.6	96.22	15	5 20 27.06	22 36 46.7	51
16	3 37 25.98	16 39 39.9	95.54	16	5 22 46.74	22 41 54.3	50
17	3 39 29.65	16 49 13.1	94.86	17	5 25 6.74	22 46 54.7	48
18	3 41 33.65	16 58 42.3	94.17	18	5 27 27.05	22 51 47.6	47
19	3 43 37.98	17 8 7.3	93.46	19	5 29 47.67	22 56 33.2	46
20	3 45 42.63	17 17 28.1	92.75	20	5 32 8.60	23 1 11.3	45
21	3 47 47.61	17 26 44.6	92.02	21	5 34 29.83	23 5 41.8	43
22	3 49 52.93	17 35 56.7	91.29	22	5 36 51.36	23 10 4.8	42
23	3 51 58.58	17 45 4.4	90.54	23	5 39 13.20	23 14 20.0	41
24	3 54 4.56	N. 17 54 7.7		24	5 41 35.32	N. 23 18 27.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 5.				MONDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	5 41 35.32	N. 23 18 27.6	39.96	0	7 39 22.40	N. 23 49 48.4	30.25
1	5 43 57.74	23 22 27.4	38.66	1	7 41 52.23	23 46 46.8	31.78
2	5 46 20.44	23 26 19.3	37.34	2	7 44 22.04	23 43 36.1	33.31
3	5 48 43.43	23 30 3.4	36.01	3	7 46 51.85	23 40 16.3	34.84
4	5 51 6.69	23 33 39.5	34.68	4	7 49 21.63	23 36 47.2	36.36
5	5 53 30.23	23 37 7.5	33.34	5	7 51 51.39	23 33 9.0	37.89
6	5 55 54.03	23 40 27.6	31.98	6	7 54 21.12	23 29 21.7	39.40
7	5 58 18.10	23 43 39.4	30.62	7	7 56 50.80	23 25 25.3	40.92
8	6 0 42.43	23 46 43.2	29.25	8	7 59 20.45	23 21 19.8	42.43
9	6 3 7.01	23 49 38.7	27.87	9	8 1 50.04	23 17 5.2	43.94
10	6 5 31.84	23 52 25.9	26.48	10	8 4 19.57	23 12 41.6	45.44
11	6 7 56.92	23 55 4.8	25.09	11	8 6 49.04	23 8 8.9	46.94
12	6 10 22.23	23 57 35.3	23.68	12	8 9 18.44	23 3 27.3	48.44
13	6 12 47.78	23 59 57.3	22.27	13	8 11 47.76	22 58 36.6	49.93
14	6 15 13.55	24 2 10.9	20.85	14	8 14 17.00	22 53 37.0	51.41
15	6 17 39.55	24 4 16.0	19.42	15	8 16 46.16	22 48 28.6	52.89
16	6 20 5.77	24 6 12.6	17.99	16	8 19 15.22	22 43 11.2	54.37
17	6 22 32.20	24 8 0.5	16.54	17	8 21 44.18	22 37 45.0	55.84
18	6 24 58.83	24 9 39.7	15.10	18	8 24 13.03	22 32 10.0	57.30
19	6 27 25.66	24 11 10.3	13.64	19	8 26 41.77	22 26 26.2	58.75
20	6 29 52.69	24 12 32.2	12.18	20	8 29 10.40	22 20 33.7	60.20
21	6 32 19.91	24 13 45.3	10.72	21	8 31 38.90	22 14 32.5	61.64
22	6 34 47.31	24 14 49.6	9.24	22	8 34 7.28	22 8 22.7	63.07
23	6 37 14.88	N. 24 15 45.0	7.77	23	8 36 35.53	N. 22 2 4.2	64.50
SUNDAY 6.				TUESDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	6 39 42.63	N. 24 16 31.6	6.28	0	8 39 3.64	N. 21 55 37.2	65.92
1	6 42 10.54	24 17 9.3	4.79	1	8 41 31.60	21 49 1.7	67.33
2	6 44 38.61	24 17 38.1	3.30	2	8 43 59.42	21 42 17.7	68.73
3	6 47 6.83	24 17 57.9	1.80	3	8 46 27.09	21 35 25.3	70.12
4	6 49 35.19	24 18 8.7	0.30	4	8 48 54.60	21 28 24.6	71.51
5	6 52 3.69	24 18 10.5	1.21	5	8 51 21.95	21 21 15.5	72.89
6	6 54 32.32	24 18 3.2	2.72	6	8 53 49.14	21 13 58.2	74.25
7	6 57 1.08	24 17 46.9	4.23	7	8 56 16.16	21 6 32.7	75.61
8	6 59 29.96	24 17 21.5	5.75	8	8 58 43.00	20 58 59.0	76.96
9	7 1 58.94	24 16 47.0	7.27	9	9 1 9.67	20 51 17.3	78.30
10	7 4 28.03	24 16 3.4	8.79	10	9 3 36.16	20 43 27.5	79.63
11	7 6 57.22	24 15 10.6	10.32	11	9 6 2.47	20 35 29.7	80.95
12	7 9 26.50	24 14 8.7	11.85	12	9 8 28.59	20 27 24.0	82.26
13	7 11 55.86	24 12 57.6	13.38	13	9 10 54.52	20 19 10.4	83.56
14	7 14 25.30	24 11 37.3	14.91	14	9 13 20.26	20 10 49.1	84.84
15	7 16 54.82	24 10 7.9	16.44	15	9 15 45.80	20 2 20.0	86.12
16	7 19 24.39	24 8 29.2	17.98	16	9 18 11.14	19 53 43.3	87.39
17	7 21 54.02	24 6 41.3	19.51	17	9 20 36.27	19 44 59.0	88.64
18	7 24 23.69	24 4 44.3	21.05	18	9 23 1.21	19 36 7.1	89.89
19	7 26 53.41	24 2 38.0	22.58	19	9 25 25.93	19 27 7.8	91.12
20	7 29 23.17	24 0 22.5	24.12	20	9 27 50.45	19 18 1.1	92.34
21	7 31 52.95	23 57 57.8	25.65	21	9 30 14.75	19 8 47.1	93.55
22	7 34 22.76	23 55 23.8	27.19	22	9 32 38.84	18 59 25.8	94.74
23	7 36 52.58	23 52 40.7	28.72	23	9 35 2.71	18 49 57.4	95.93
24	7 39 22.40	N. 23 49 48.4		24	9 37 26.36	N. 18 40 21.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 9.				FRIDAY 11.			
0	9 37 26.36	N. 18 40 21.8	97.10	0	11 27 59.16	N. 9 6 34.0	1
1	9 39 49.79	18 30 39.2	98.26	1	11 30 12.34	8 52 49.3	1
2	9 42 13.00	18 20 49.7	99.41	2	11 32 25.35	8 39 1.6	1
3	9 44 35.98	18 10 53.2	100.54	3	11 34 38.21	8 25 11.1	1
4	9 46 58.74	18 0 50.0	101.66	4	11 36 50.90	8 11 17.8	1
5	9 49 21.27	17 50 40.0	102.77	5	11 39 3.43	7 57 21.7	1
6	9 51 43.57	17 40 23.4	103.87	6	11 41 15.82	7 43 23.1	1
7	9 54 5.65	17 30 0.1	104.95	7	11 43 28.05	7 29 21.9	1
8	9 56 27.50	17 19 30.4	106.02	8	11 45 40.14	7 15 18.3	1
9	9 58 49.12	17 8 54.3	107.08	9	11 47 52.09	7 1 12.4	1
10	10 1 10.51	16 58 11.8	108.13	10	11 50 3.90	6 47 4.1	1
11	10 3 31.66	16 47 23.0	109.16	11	11 52 15.57	6 32 53.7	1
12	10 5 52.59	16 36 28.0	110.18	12	11 54 27.11	6 18 41.1	1
13	10 8 13.29	16 25 27.0	111.18	13	11 56 38.52	6 4 26.5	1
14	10 10 33.76	16 14 19.9	112.17	14	11 58 49.81	5 50 10.0	1
15	10 12 53.99	16 3 6.9	113.15	15	12 1 0.98	5 35 51.7	1
16	10 15 14.00	15 51 48.0	114.11	16	12 3 12.04	5 21 31.6	1
17	10 17 33.77	15 40 23.3	115.06	17	12 5 22.98	5 7 9.7	1
18	10 19 53.32	15 28 52.9	116.00	18	12 7 33.81	4 52 46.3	1
19	10 22 12.63	15 17 17.0	116.92	19	12 9 44.54	4 38 21.4	1
20	10 24 31.72	15 5 35.5	117.83	20	12 11 55.16	4 23 55.1	1
21	10 26 50.58	14 53 48.5	118.72	21	12 14 5.69	4 9 27.4	1
22	10 29 9.22	14 41 56.2	119.60	22	12 16 16.13	3 54 58.4	1
23	10 31 27.63	N. 14 29 58.6	120.46	23	12 18 26.48	N. 3 40 28.3	1
THURSDAY 10.				SATURDAY 12.			
0	10 33 45.81	N. 14 17 55.8	121.31	0	12 20 36.75	N. 3 25 57.0	1
1	10 36 3.77	14 5 47.9	122.15	1	12 22 46.93	3 11 24.8	1
2	10 38 21.51	13 53 35.0	122.97	2	12 24 57.04	2 56 51.6	1
3	10 40 39.03	13 41 17.2	123.78	3	12 27 7.08	2 42 17.6	1
4	10 42 56.32	13 28 54.5	124.58	4	12 29 17.05	2 27 42.8	1
5	10 45 13.40	13 16 27.1	125.36	5	12 31 26.96	2 13 7.4	1
6	10 47 30.27	13 3 54.9	126.12	6	12 33 36.80	1 58 31.3	1
7	10 49 46.91	12 51 18.2	126.87	7	12 35 46.59	1 43 54.7	1
8	10 52 3.34	12 38 36.9	127.61	8	12 37 56.33	1 29 17.7	1
9	10 54 19.57	12 25 51.3	128.33	9	12 40 6.02	1 14 40.4	1
10	10 56 35.58	12 13 1.3	129.04	10	12 42 15.66	1 0 2.7	1
11	10 58 51.39	12 0 7.0	129.74	11	12 44 25.27	0 45 24.9	1
12	11 1 6.99	11 47 8.6	130.42	12	12 46 34.84	0 30 47.0	1
13	11 3 22.39	11 34 6.1	131.08	13	12 48 44.38	0 16 9.1	1
14	11 5 37.59	11 20 59.6	131.73	14	12 50 53.89	N. 0 1 31.2	1
15	11 7 52.59	11 7 49.2	132.37	15	12 53 3.39	S. 0 13 6.6	1
16	11 10 7.40	10 54 34.9	132.99	16	12 55 12.86	0 27 44.1	1
17	11 12 22.01	10 41 17.0	133.60	17	12 57 22.32	0 42 21.3	1
18	11 14 36.44	10 27 55.4	134.19	18	12 59 31.77	0 56 58.2	1
19	11 16 50.68	10 14 30.2	134.77	19	13 1 41.21	1 11 34.6	1
20	11 19 4.73	10 1 1.6	135.34	20	13 3 50.66	1 26 10.4	1
21	11 21 18.60	9 47 29.5	135.89	21	13 6 0.10	1 40 45.6	1
22	11 23 32.30	9 33 54.2	136.42	22	13 8 9.55	1 55 20.1	1
23	11 25 45.82	9 20 15.7	136.95	23	13 10 19.01	2 9 53.8	1
24	11 27 59.16	N. 9 6 34.0		24	13 12 28.49	S. 2 24 26.6	1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 13.				TUESDAY 15.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	13 12 28.49	S. 2 24 26.6	145.31	0	14 57 37.32	S. 13 19 51.3	122.28
1	13 14 37.98	2 38 58.5	145.14	1	14 59 52.10	13 32 5.0	121.48
2	13 16 47.50	2 53 29.4	144.96	2	15 2 7.06	13 44 13.8	120.67
3	13 18 57.05	3 7 59.1	144.76	3	15 4 22.20	13 56 17.9	119.85
4	13 21 6.63	3 22 27.7	144.55	4	15 6 37.53	14 8 17.0	119.02
5	13 23 16.25	3 36 55.0	144.33	5	15 8 53.05	14 20 11.1	118.17
6	13 25 25.90	3 51 20.9	144.09	6	15 11 8.76	14 32 0.1	117.31
7	13 27 35.60	4 5 45.5	143.84	7	15 13 24.65	14 43 43.9	116.44
8	13 29 45.35	4 20 8.5	143.57	8	15 15 40.74	14 55 22.6	115.55
9	13 31 55.14	4 34 29.9	143.30	9	15 17 57.02	15 6 55.9	114.66
10	13 34 5.00	4 48 49.7	143.01	10	15 20 13.50	15 18 23.8	113.75
11	13 36 14.91	5 3 7.8	142.71	11	15 22 30.17	15 29 46.3	112.83
12	13 38 24.89	5 17 24.0	142.39	12	15 24 47.04	15 41 3.3	111.89
13	13 40 34.94	5 31 38.4	142.06	13	15 27 4.11	15 52 14.6	110.95
14	13 42 45.06	5 45 50.8	141.72	14	15 29 21.37	16 3 20.3	109.99
15	13 44 55.26	6 0 1.1	141.37	15	15 31 38.84	16 14 20.3	109.02
16	13 47 5.53	6 14 9.3	141.00	16	15 33 56.50	16 25 14.4	108.04
17	13 49 15.89	6 28 15.3	140.61	17	15 36 14.37	16 36 2.7	107.05
18	13 51 26.34	6 42 18.9	140.22	18	15 38 32.43	16 46 44.9	106.04
19	13 53 36.88	6 56 20.3	139.81	19	15 40 50.70	16 57 21.2	105.03
20	13 55 47.51	7 10 19.1	139.39	20	15 43 9.17	17 7 51.4	104.00
21	13 57 58.25	7 24 15.4	138.95	21	15 45 27.84	17 18 15.4	102.96
22	14 0 9.08	7 38 9.1	138.50	22	15 47 46.71	17 28 33.2	101.91
23	14 2 20.02	S. 7 52 0.1	138.04	23	15 50 5.78	S. 17 38 44.6	100.85
MONDAY 14.				WEDNESDAY 16.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	14 4 31.07	S. 8 5 48.4	137.56	0	15 52 25.05	S. 17 48 49.7	99.78
1	14 6 42.23	8 19 33.7	137.07	1	15 54 44.53	17 58 48.4	98.69
2	14 8 53.50	8 33 16.2	136.57	2	15 57 4.20	18 8 40.6	97.60
3	14 11 4.90	8 46 55.6	136.06	3	15 59 24.07	18 18 26.2	96.49
4	14 13 16.42	9 0 31.9	135.53	4	16 1 44.15	18 28 5.1	95.37
5	14 15 28.06	9 14 5.1	134.99	5	16 4 4.42	18 37 37.4	94.25
6	14 17 39.83	9 27 35.0	134.44	6	16 6 24.89	18 47 2.8	93.11
7	14 19 51.74	9 41 1.6	133.87	7	16 8 45.56	18 56 21.5	91.96
8	14 22 3.78	9 54 24.8	133.29	8	16 11 6.42	19 5 33.2	90.80
9	14 24 15.96	10 7 44.6	132.70	9	16 13 27.47	19 14 38.0	89.63
10	14 26 28.28	10 21 0.8	132.09	10	16 15 48.72	19 23 35.7	88.44
11	14 28 40.75	10 34 13.3	131.47	11	16 18 10.16	19 32 26.4	87.25
12	14 30 53.37	10 47 22.2	130.85	12	16 20 31.79	19 41 9.9	86.05
13	14 33 6.14	11 0 27.2	130.20	13	16 22 53.61	19 49 46.2	84.84
14	14 35 19.06	11 13 28.5	129.55	14	16 25 15.61	19 58 15.3	83.62
15	14 37 32.14	11 26 25.7	128.88	15	16 27 37.80	20 6 37.0	82.39
16	14 39 45.38	11 39 19.0	128.19	16	16 30 0.17	20 14 51.3	81.15
17	14 41 58.78	11 52 8.2	127.50	17	16 32 22.72	20 22 58.1	79.90
18	14 44 12.35	12 4 53.2	126.79	18	16 34 45.44	20 30 57.5	78.64
19	14 46 26.08	12 17 33.9	126.07	19	16 37 8.34	20 38 49.4	77.37
20	14 48 39.98	12 30 10.3	125.34	20	16 39 31.41	20 46 33.6	76.09
21	14 50 54.05	12 42 42.4	124.59	21	16 41 54.66	20 54 10.1	74.81
22	14 53 8.30	12 55 9.9	123.83	22	16 44 18.06	21 1 39.0	73.52
23	14 55 22.72	13 7 32.9	123.06	23	16 46 41.64	21 9 0.1	72.21
24	14 57 37.32	S. 13 19 51.3		24	16 49 5.37	S. 21 16 13.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 17.				SATURDAY 19.			
0	h m s 16 49 53.7	S. 21 16 13.4	70.90	0	h m s 18 45 47.86	S. 24 18 7.3	2
1	16 51 29.26	21 23 18.8	69.58	1	18 48 13.72	24 18 21.2	0
2	16 53 53.30	21 30 16.3	68.26	2	18 50 39.47	24 18 26.3	0
3	16 56 17.49	21 37 5.8	66.92	3	18 53 5.12	24 18 22.8	2
4	16 58 41.83	21 43 47.4	65.58	4	18 55 30.66	24 18 10.6	3
5	17 1 6.32	21 50 20.9	64.23	5	18 57 56.08	24 17 49.7	4
6	17 3 30.94	21 56 46.3	62.88	6	19 0 21.37	24 17 20.1	6
7	17 5 55.70	22 3 3.6	61.52	7	19 2 46.54	24 16 42.0	7
8	17 8 20.59	22 9 12.7	60.15	8	19 5 11.57	24 15 55.2	9
9	17 10 45.61	22 15 13.5	58.77	9	19 7 36.46	24 14 59.9	10
10	17 13 10.75	22 21 6.1	57.39	10	19 10 1.20	24 13 56.1	12
11	17 15 36.01	22 26 50.5	56.00	11	19 12 25.79	24 12 43.7	13
12	17 18 1.39	22 32 26.5	54.60	12	19 14 50.22	24 11 22.9	14
13	17 20 26.88	22 37 54.1	53.20	13	19 17 14.49	24 9 53.6	16
14	17 22 52.48	22 43 13.3	51.80	14	19 19 38.59	24 8 15.9	17
15	17 25 18.17	22 48 24.1	50.39	15	19 22 2.52	24 6 29.9	19
16	17 27 43.96	22 53 26.4	48.97	16	19 24 26.27	24 4 35.4	20
17	17 30 9.85	22 58 20.2	47.55	17	19 26 49.83	24 2 32.7	22
18	17 32 35.82	23 3 5.5	46.12	18	19 29 13.20	24 0 21.8	23
19	17 35 1.87	23 7 42.2	44.69	19	19 31 36.37	23 58 2.6	24
20	17 37 28.00	23 12 10.4	43.25	20	19 33 59.34	23 55 35.2	25
21	17 39 54.20	23 16 29.9	41.81	21	19 36 22.11	23 52 59.6	26
22	17 42 20.46	23 20 40.8	40.37	22	19 38 44.67	23 50 16.0	27
23	17 44 46.79	S. 23 24 43.0	38.92	23	19 41 7.01	S. 23 47 24.3	28
FRIDAY 18.				SUNDAY 20.			
0	17 47 13.17	S. 23 28 36.5	37.47	0	19 43 29.13	S. 23 44 24.5	30
1	17 49 39.60	23 32 21.3	36.02	1	19 45 51.02	23 41 16.8	31
2	17 52 6.07	23 35 57.4	34.56	2	19 48 12.69	23 38 1.2	32
3	17 54 32.59	23 39 24.8	33.10	3	19 50 34.11	23 34 37.7	33
4	17 56 59.13	23 42 43.4	31.64	4	19 52 55.30	23 31 6.4	34
5	17 59 25.70	23 45 53.3	30.18	5	19 55 16.25	23 27 27.3	35
6	18 1 52.29	23 48 54.3	28.71	6	19 57 36.95	23 23 40.5	36
7	18 4 18.90	23 51 46.6	27.25	7	19 59 57.40	23 19 45.9	37
8	18 6 45.52	23 54 30.1	25.78	8	20 2 17.60	23 15 43.8	38
9	18 9 12.14	23 57 4.7	24.31	9	20 4 37.53	23 11 34.0	39
10	18 11 38.76	23 59 30.6	22.84	10	20 6 57.21	23 7 16.8	40
11	18 14 5.37	24 1 47.7	21.37	11	20 9 16.62	23 2 52.0	41
12	18 16 31.97	24 3 55.9	19.90	12	20 11 35.76	22 58 19.9	42
13	18 18 58.55	24 5 55.3	18.43	13	20 13 54.63	22 53 40.3	43
14	18 21 25.11	24 7 45.9	16.96	14	20 16 13.22	22 48 53.4	44
15	18 23 51.63	24 9 27.6	15.49	15	20 18 31.54	22 43 59.3	45
16	18 26 18.11	24 11 0.6	14.02	16	20 20 49.57	22 38 58.0	46
17	18 28 44.55	24 12 24.7	12.55	17	20 23 7.32	22 33 49.6	47
18	18 31 10.94	24 13 40.0	11.09	18	20 25 24.78	22 28 34.1	48
19	18 33 37.27	24 14 46.6	9.62	19	20 27 41.94	22 23 11.6	49
20	18 36 3.54	24 15 44.3	8.15	20	20 29 58.82	22 17 42.1	50
21	18 38 29.74	24 16 33.2	6.69	21	20 32 15.40	22 12 5.7	51
22	18 40 55.86	24 17 13.3	5.23	22	20 34 31.68	22 6 22.6	52
23	18 43 21.90	24 17 44.7	3.77	23	20 36 47.66	22 0 32.6	53
24	18 45 47.86	S. 24 18 7.3		24	20 39 3.34	S. 21 54 35.9	54

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 21.				WEDNESDAY 23.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	20 39 3 ³⁴	S. 21 54 35 ⁹	60 ⁵⁵	0	22 21 24 ⁵⁰	S. 15 18 47 ¹	101 ¹⁰
1	20 41 18 ⁷¹	21 48 32 ⁶	61 ⁶⁴	1	22 23 24 ⁸⁸	15 8 40 ⁴	101 ⁶⁹
2	20 43 33 ⁷⁷	21 42 22 ⁸	62 ⁷³	2	22 25 24 ⁹⁸	14 58 30 ³	102 ²⁷
3	20 45 48 ⁵³	21 36 6 ⁴	63 ⁸⁰	3	22 27 24 ⁸⁰	14 48 16 ⁷	102 ⁸⁴
4	20 48 2 ⁹⁷	21 29 43 ⁶	64 ⁸⁷	4	22 29 24 ³⁴	14 37 59 ⁷	103 ³⁹
5	20 50 17 ¹¹	21 23 14 ⁴	65 ⁹²	5	22 31 23 ⁶⁰	14 27 39 ³	103 ⁹⁴
6	20 52 30 ⁹³	21 16 38 ⁸	66 ⁹⁷	6	22 33 22 ⁵⁸	14 17 15 ⁷	104 ⁴⁸
7	20 54 44 ⁴³	21 9 57 ⁰	68 ⁰⁰	7	22 35 21 ³⁰	14 6 48 ⁸	105 ⁰¹
8	20 56 57 ⁶²	21 3 9 ⁰	69 ⁰²	8	22 37 19 ⁷⁵	13 56 18 ⁷	105 ⁵³
9	20 59 10 ⁴⁹	20 56 14 ⁹	70 ⁰⁴	9	22 39 17 ⁹³	13 45 45 ⁵	106 ⁰⁴
10	21 1 23 ⁰⁵	20 49 14 ⁷	71 ⁰⁴	10	22 41 15 ⁸⁵	13 35 9 ²	106 ⁵⁵
11	21 3 35 ²⁹	20 42 8 ⁴	72 ⁰³	11	22 43 13 ⁵⁰	13 24 29 ⁹	107 ⁰⁴
12	21 5 47 ²⁰	20 34 56 ³	73 ⁰²	12	22 45 10 ⁹⁰	13 13 47 ⁷	107 ⁵³
13	21 7 58 ⁸⁰	20 27 38 ²	73 ⁹⁸	13	22 47 8 ⁰⁵	13 3 2 ⁶	108 ⁰⁰
14	21 10 10 ⁰⁷	20 20 14 ³	74 ⁹⁴	14	22 49 4 ⁹⁴	12 52 14 ⁶	108 ⁴⁶
15	21 12 21 ⁰³	20 12 44 ⁶	75 ⁸⁹	15	22 51 1 ⁵⁸	12 41 23 ⁸	108 ⁹²
16	21 14 31 ⁶⁶	20 5 9 ³	76 ⁸³	16	22 52 57 ⁹⁸	12 30 30 ²	109 ³⁷
17	21 16 41 ⁹⁷	19 57 28 ³	77 ⁷⁵	17	22 54 54 ¹⁴	12 19 34 ⁰	109 ⁸¹
18	21 18 51 ⁹⁶	19 49 41 ⁸	78 ⁶⁷	18	22 56 50 ⁰⁵	12 8 35 ²	110 ²⁴
19	21 21 1 ⁶²	19 41 49 ⁸	79 ⁵⁷	19	22 58 45 ⁷³	11 57 33 ⁸	110 ⁶⁶
20	21 23 10 ⁹⁷	19 33 52 ⁴	80 ⁴⁶	20	23 0 41 ¹⁸	11 46 29 ⁸	111 ⁰⁷
21	21 25 19 ⁹⁹	19 25 49 ⁶	81 ³⁵	21	23 2 36 ³⁹	11 35 23 ⁴	111 ⁴⁷
22	21 27 28 ⁶⁹	19 17 41 ⁵	82 ²²	22	23 4 31 ³⁷	11 24 14 ⁶	111 ⁸⁷
23	21 29 37 ⁰⁷	S. 19 9 28 ²	83 ⁰⁸	23	23 6 26 ¹³	S. 11 13 3 ⁴	112 ²⁵
TUESDAY 22.				THURSDAY 24.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	21 31 45 ¹³	S. 19 1 9 ⁸	83 ⁹²	0	23 8 20 ⁶⁷	S. 11 1 49 ⁹	112 ⁶³
1	21 33 52 ⁸⁷	18 52 46 ²	84 ⁷⁶	1	23 10 14 ⁹⁹	10 50 34 ¹	113 ⁰⁰
2	21 36 0 ²⁸	18 44 17 ⁷	85 ⁵⁹	2	23 12 9 ⁰⁹	10 39 16 ¹	113 ³⁶
3	21 38 7 ³⁸	18 35 44 ¹	86 ⁴⁰	3	23 14 2 ⁹⁸	10 27 56 ⁰	113 ⁷¹
4	21 40 14 ¹⁵	18 27 5 ⁷	87 ²¹	4	23 15 56 ⁶⁷	10 16 33 ⁷	114 ⁰⁶
5	21 42 20 ⁶¹	18 18 22 ⁵	88 ⁰⁰	5	23 17 50 ¹⁵	10 5 9 ⁴	114 ³⁹
6	21 44 26 ⁷⁵	18 9 34 ⁴	88 ⁷⁹	6	23 19 43 ⁴²	9 53 43 ⁰	114 ⁷²
7	21 46 32 ⁵⁸	18 0 41 ⁷	89 ⁵⁶	7	23 21 36 ⁵⁰	9 42 14 ⁷	115 ⁰⁴
8	21 48 38 ⁰⁹	17 51 44 ⁴	90 ³²	8	23 23 29 ³⁹	9 30 44 ⁴	115 ³⁵
9	21 50 43 ²⁸	17 42 42 ⁴	91 ⁰⁸	9	23 25 22 ⁰⁸	9 19 12 ³	115 ⁶⁶
10	21 52 48 ¹⁷	17 33 36 ⁰	91 ⁸²	10	23 27 14 ⁵⁸	9 7 38 ⁴	115 ⁹⁵
11	21 54 52 ⁷⁴	17 24 25 ¹	92 ⁵⁵	11	23 29 6 ⁹⁰	8 56 2 ⁷	116 ²⁴
12	21 56 56 ⁹⁹	17 15 9 ⁸	93 ²⁷	12	23 30 59 ⁰⁴	8 44 25 ²	116 ⁵³
13	21 59 0 ⁹⁴	17 5 50 ²	93 ⁹⁸	13	23 32 51 ⁰⁰	8 32 46 ⁰	116 ⁸⁰
14	22 1 4 ⁵⁸	16 56 26 ³	94 ⁶⁸	14	23 34 42 ⁷⁹	8 21 5 ²	117 ⁰⁷
15	22 3 7 ⁹²	16 46 58 ²	95 ³⁷	15	23 36 34 ⁴¹	8 9 22 ⁸	117 ³³
16	22 5 10 ⁹⁶	16 37 26 ⁰	96 ⁰⁴	16	23 38 25 ⁸⁶	7 57 38 ⁹	117 ⁵⁸
17	22 7 13 ⁶⁹	16 27 49 ⁸	96 ⁷¹	17	23 40 17 ¹⁵	7 45 53 ⁴	117 ⁸²
18	22 9 16 ¹²	16 18 9 ⁵	97 ³⁷	18	23 42 8 ²⁸	7 34 6 ⁵	118 ⁰⁶
19	22 11 18 ²⁵	16 8 25 ³	98 ⁰²	19	23 43 59 ²⁶	7 22 18 ²	118 ²⁹
20	22 13 20 ⁰⁹	15 58 37 ¹	98 ⁶⁶	20	23 45 50 ⁰⁸	7 10 28 ⁵	118 ⁵¹
21	22 15 21 ⁶³	15 48 45 ²	99 ²⁸	21	23 47 40 ⁷⁵	6 58 37 ⁴	118 ⁷²
22	22 17 22 ⁸⁷	15 38 49 ⁵	99 ⁹⁰	22	23 49 31 ²⁸	6 46 45 ¹	118 ⁹³
23	22 19 23 ⁸³	15 28 50 ¹	100 ⁵¹	23	23 51 21 ⁶⁶	6 34 51 ⁵	119 ¹³
24	22 21 24 ⁵⁰	S. 15 18 47 ¹		24	23 53 11 ⁹¹	S. 6 22 56 ⁷	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
FRIDAY 25.				SUNDAY 27.		
0	^h 23 ^m 53 ^s 11·91	S. 6° 22' 56·7	119·32	0	^h 1 19 ^m 56·74	N. 3° 19' 22·5
1	23 55 2·02	6 11 0·8	119·51	1	1 21 44·96	3 31 28·1
2	23 56 52·00	5 59 3·8	119·69	2	1 23 33·23	3 43 32·9
3	23 58 41·86	5 47 5·6	119·86	3	1 25 21·57	3 55 37·0
4	0 0 31·59	5 35 6·5	120·02	4	1 27 9·97	4 7 40·3
5	0 2 21·21	5 23 6·3	120·18	5	1 28 58·43	4 19 42·7
6	0 4 10·70	5 11 5·2	120·33	6	1 30 46·98	4 31 44·3
7	0 6 0·09	4 59 3·2	120·48	7	1 32 35·59	4 43 45·0
8	0 7 49·36	4 47 0·4	120·62	8	1 34 24·29	4 55 44·8
9	0 9 38·54	4 34 56·7	120·75	9	1 36 13·07	5 7 43·6
10	0 11 27·61	4 22 52·2	120·87	10	1 38 1·95	5 19 41·4
11	0 13 16·59	4 10 46·9	120·99	11	1 39 50·91	5 31 38·1
12	0 15 5·48	3 58 41·0	121·10	12	1 41 39·97	5 43 33·7
13	0 16 54·28	3 46 34·4	121·21	13	1 43 29·13	5 55 28·2
14	0 18 42·99	3 34 27·1	121·31	14	1 45 18·39	6 7 21·6
15	0 20 31·62	3 22 19·3	121·40	15	1 47 7·76	6 19 13·7
16	0 22 20·18	3 10 10·9	121·49	16	1 48 57·25	6 31 4·6
17	0 24 8·66	2 58 2·0	121·56	17	1 50 46·85	6 42 54·2
18	0 25 57·07	2 45 52·6	121·64	18	1 52 36·56	6 54 42·6
19	0 27 45·42	2 33 42·8	121·70	19	1 54 26·41	7 6 29·5
20	0 29 33·70	2 21 32·5	121·76	20	1 56 16·38	7 18 15·0
21	0 31 21·93	2 9 22·0	121·82	21	1 58 6·48	7 29 59·2
22	0 33 10·10	1 57 11·1	121·86	22	1 59 56·72	7 41 41·8
23	0 34 58·23	S. 1° 44' 59·9	121·90	23	2 1 47·10	N. 7° 53' 22·9
SATURDAY 26.				MONDAY 28.		
0	0 36 46·31	S. 1° 32' 48·5	121·94	0	2 3 37·63	N. 8° 5' 2·5
1	0 38 34·35	1 20 36·8	121·97	1	2 5 28·30	8 16 40·5
2	0 40 22·35	1 8 25·1	121·99	2	2 7 19·13	8 28 16·8
3	0 42 10·31	0 56 13·1	122·00	3	2 9 10·11	8 39 51·5
4	0 43 58·25	0 44 1·1	122·01	4	2 11 1·25	8 51 24·4
5	0 45 46·16	0 31 49·1	122·02	5	2 12 52·56	9 2 55·6
6	0 47 34·05	0 19 37·0	122·01	6	2 14 44·03	9 14 25·0
7	0 49 21·92	S. 0° 7' 24·9	122·00	7	2 16 35·67	9 25 52·6
8	0 51 9·77	N. 0° 4' 47·1	121·99	8	2 18 27·49	9 37 18·2
9	0 52 57·62	0 16 59·1	121·97	9	2 20 19·49	9 48 42·0
10	0 54 45·46	0 29 10·9	121·94	10	2 22 11·67	10 0 3·7
11	0 56 33·29	0 41 22·5	121·91	11	2 24 4·03	10 11 23·5
12	0 58 21·13	0 53 34·0	121·87	12	2 25 56·59	10 22 41·2
13	1 0 8·97	1 5 45·2	121·82	13	2 27 49·34	10 33 56·8
14	1 1 56·83	1 17 56·1	121·77	14	2 29 42·28	10 45 10·2
15	1 3 44·69	1 30 6·8	121·71	15	2 31 35·43	10 56 21·4
16	1 5 32·58	1 42 17·1	121·65	16	2 33 28·78	11 7 30·5
17	1 7 20·48	1 54 27·0	121·58	17	2 35 22·34	11 18 37·2
18	1 9 8·41	2 6 36·5	121·51	18	2 37 16·11	11 29 41·6
19	1 10 56·37	2 18 45·5	121·42	19	2 39 10·09	11 40 43·6
20	1 12 44·36	2 30 54·0	121·34	20	2 41 4·30	11 51 43·2
21	1 14 32·39	2 43 2·0	121·24	21	2 42 58·73	12 2 40·4
22	1 16 20·46	2 55 9·5	121·14	22	2 44 53·39	12 13 35·0
23	1 18 8·58	3 7 16·3	121·03	23	2 46 48·28	12 24 27·1
	1 19 56·74	N. 3° 19' 22·5		24	2 48 43·40	N. 12° 35' 16·5

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 29.				THURSDAY 31.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	2 48 43.40	N. 12 35 16.5	107.80	0	4 26 25.97	N. 20 6 23.1	75.75
1	2 50 38.76	12 46 3.3	107.35	1	4 28 36.15	20 13 57.6	74.83
2	2 52 34.36	12 56 47.4	106.89	2	4 30 46.69	20 21 26.6	73.90
3	2 54 30.21	13 7 28.8	106.42	3	4 32 57.59	20 28 50.0	72.95
4	2 56 26.30	13 18 7.3	105.95	4	4 35 8.84	20 36 7.7	72.00
5	2 58 22.65	13 28 43.0	105.46	5	4 37 20.45	20 43 19.7	71.04
6	3 0 19.25	13 39 15.8	104.97	6	4 39 32.43	20 50 25.9	70.06
7	3 2 16.10	13 49 45.6	104.47	7	4 41 44.75	20 57 26.3	69.07
8	3 4 13.23	14 0 12.4	103.96	8	4 43 57.44	21 4 20.7	68.08
9	3 6 10.61	14 10 36.1	103.44	9	4 46 10.49	21 11 9.2	67.07
10	3 8 8.27	14 20 56.8	102.91	10	4 48 23.90	21 17 51.6	66.05
11	3 10 6.19	14 31 14.3	102.38	11	4 50 37.66	21 24 27.8	65.01
12	3 12 4.39	14 41 28.6	101.83	12	4 52 51.79	21 30 57.9	63.97
13	3 14 2.87	14 51 39.6	101.28	13	4 55 6.27	21 37 21.8	62.92
14	3 16 1.62	15 1 47.2	100.72	14	4 57 21.11	21 43 39.3	61.85
15	3 18 0.66	15 11 51.6	100.15	15	4 59 36.31	21 49 50.4	60.77
16	3 19 59.99	15 21 52.4	99.57	16	5 1 51.87	21 55 55.0	59.68
17	3 21 59.61	15 31 49.8	98.98	17	5 4 7.77	22 1 53.1	58.58
18	3 23 59.52	15 41 43.7	98.38	18	5 6 24.04	22 7 44.6	57.47
19	3 25 59.73	15 51 34.0	97.77	19	5 8 40.65	22 13 29.5	56.35
20	3 28 0.24	16 1 20.6	97.15	20	5 10 57.62	22 19 7.6	55.21
21	3 30 1.05	16 11 3.5	96.53	21	5 13 14.94	22 24 38.8	54.07
22	3 32 2.16	16 20 42.7	95.89	22	5 15 32.60	22 30 3.2	52.91
23	3 34 3.59	N. 16 30 18.0	95.24	23	5 17 50.61	N. 22 35 20.7	51.74
WEDNESDAY 30.				FRIDAY, AUGUST 1.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	3 36 5.32	N. 16 39 49.4	94.59	0	5 20 8.97	N. 22 40 31.1	
1	3 38 7.37	16 49 17.0	93.92				
2	3 40 9.73	16 58 40.5	93.25				
3	3 42 12.41	17 7 59.9	92.56				
4	3 44 15.41	17 17 15.3	91.86				
5	3 46 18.74	17 26 26.5	91.16				
6	3 48 22.39	17 35 33.4	90.44				
7	3 50 26.37	17 44 36.1	89.72				
8	3 52 30.68	17 53 34.4	88.98				
9	3 54 35.32	18 2 28.2	88.23				
10	3 56 40.29	18 11 17.6	87.48				
11	3 58 45.60	18 20 2.5	86.71				
12	4 0 51.25	18 28 42.7	85.93				
13	4 2 57.24	18 37 18.3	85.14				
14	4 5 3.56	18 45 49.2	84.34				
15	4 7 10.23	18 54 15.2	83.53				
16	4 9 17.25	19 2 36.4	82.71				
17	4 11 24.61	19 10 52.7	81.88				
18	4 13 32.32	19 19 4.0	81.04				
19	4 15 40.38	19 27 10.2	80.18				
20	4 17 48.79	19 35 11.3	79.32				
21	4 19 57.56	19 43 7.2	78.44				
22	4 22 6.67	19 50 57.8	77.56				
23	4 24 16.14	19 58 43.2	76.66				
24	4 26 25.97	N. 20 6 23.1					

PHASES OF THE MOON.

● New Moon ^d 6 ^h 9 ^m 13.0
 ☽ First Quarter .. 13 5 15.4
 ○ Full Moon. 20 7 16.5
 ☾ Last Quarter... 28 7 7.8

☾ Perigee ^d 11 ^h 12
 ☾ Apogee 26 13

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
1	α Aquilæ W.	97 25 2	3725	98 41 23	3722	99 57 47	3720	101 14	
	Fomalhaut W.	64 24 55	3208	65 50 55	3194	67 17 11	3181	68 43	
	Jupiter E.	25 1 40	3073	23 32 57	3065	22 4 5	3057	20 35	
	SUN E.	63 30 38	3346	62 7 20	3337	60 43 51	3328	59 20	
2	Fomalhaut W.	76 0 28	3100	77 28 38	3087	78 57 4	3074	80 25	
	α Pegasi W.	60 4 46	3474	61 25 39	3447	62 47 2	3420	64 8	
	SUN E.	52 18 52	3263	50 53 57	3251	49 28 48	3238	48 3	
3	Fomalhaut W.	87 53 24	2993	89 23 45	2981	90 54 22	2968	92 25	
	α Pegasi W.	71 5 20	3280	72 29 55	3259	73 54 55	3239	75 20	
	Mars W.	19 17 57	3109	20 45 56	3090	22 14 18	3071	23 43	
	SUN E.	40 52 38	3160	39 25 41	3146	37 58 27	3133	36 30	
4	Fomalhaut W.	100 3 36	2894	101 36 2	2883	103 8 43	2872	104 41	
	α Pegasi W.	82 32 51	3130	84 0 24	3114	85 28 17	3098	86 56	
	α Arietis W.	38 57 33	3048	40 26 47	3013	41 56 44	2979	43 27	
	Mars W.	31 11 59	2972	32 42 47	2956	34 13 55	2941	35 45	
	SUN E.	29 9 13	3049	27 40 1	3035	26 10 32	3021	24 40	
7	Mars W.	- - -	- -	- - -	- -	- - -	- -	- -	
	Jupiter W.	- - -	- -	- - -	- -	- - -	- -	- -	
	Saturn E.	- - -	- -	- - -	- -	- - -	- -	- -	
8	SUN W.	- - -	- -	- - -	- -	- - -	- -	- -	
	Saturn E.	58 16 36	2367	56 32 14	2360	54 47 42	2355	53 3	
	Spica π E.	75 13 6	2377	73 28 58	2371	71 44 41	2364	70 0	
	Antares E.	121 7 30	2379	119 23 25	2371	117 39 8	2362	115 54	
9	SUN W.	34 3 4	2604	35 41 53	2599	37 20 49	2594	38 59	
	Saturn E.	44 17 38	2324	42 32 13	2320	40 46 43	2317	39 1	
	Spica π E.	61 16 15	2337	59 31 9	2335	57 46 0	2332	56 0	
	Antares E.	107 9 49	2324	105 24 25	2320	103 38 55	2315	101 53	
10	SUN W.	47 16 24	2574	48 55 55	2572	50 35 29	2570	52 15	
	Venus W.	- - -	- -	- - -	- -	- - -	- -	- -	
	Saturn E.	30 12 31	2309	28 26 44	2309	26 40 57	2311	24 55	
	Spica π E.	47 14 16	2328	45 28 58	2331	43 43 43	2333	41 58	
	Antares E.	93 3 52	2296	91 17 47	2294	89 31 39	2292	87 45	
11	SUN W.	60 33 32	2564	62 13 16	2564	63 53 0	2565	65 32	
	Venus W.	28 32 47	2657	30 10 24	2656	31 48 3	2655	33 25	
	Regulus W.	22 0 49	2335	23 45 57	2326	25 31 18	2320	27 16	
	Spica π E.	33 14 19	2371	31 30 3	2382	29 46 3	2396	28 2	
	Antares E.	78 54 13	2289	77 7 57	2289	75 21 42	2290	73 35	
12	SUN W.	73 51 3	2571	75 30 38	2573	77 10 10	2574	78 49	
	Venus W.	41 34 3	2657	43 11 40	2658	44 49 16	2660	46 26	
	Regulus W.	36 5 57	2299	37 51 58	2299	39 37 59	2298	41 24	
	Antares E.	64 44 47	2300	62 58 47	2303	61 12 52	2305	59 27	
	α Aquilæ E.	109 43 11	3090	108 14 49	3074	106 46 8	3061	105 17	
13	SUN W.	87 6 20	2590	88 45 29	2593	90 24 33	2596	92 3	
	Venus W.	54 33 58	2673	56 11 14	2676	57 48 26	2679	59 25	
	Regulus W.	50 13 59	2304	51 59 53	2306	53 45 44	2309	55 31	

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Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		^o ⁱ ^{''}		^o ⁱ ^{''}		^o ⁱ ^{''}		^o ⁱ ^{''}	
1	α Aquilæ W.	102 30 40	3718	103 47 8	3718	105 3 36	3720	106 20 2	3721
	Fomalhaut W.	70 10 32	3154	71 37 36	3140	73 4 57	3126	74 32 35	3114
	Jupiter E.	19 5 51	3042	17 36 30	3035	- - -	- - -	- - -	- - -
	SUN E.	57 56 21	3307	56 32 18	3296	55 8 2	3286	53 43 34	3274
2	Fomalhaut W.	81 54 45	3047	83 24 0	3033	84 53 32	3020	86 23 20	3007
	α Pegasi W.	65 31 18	3371	66 54 8	3346	68 17 26	3324	69 41 10	3301
	SUN E.	46 37 46	3213	45 11 52	3200	43 45 43	3187	42 19 18	3174
3	Fomalhaut W.	93 56 24	2943	95 27 49	2931	96 59 29	2918	98 31 25	2906
	α Pegasi W.	76 46 5	3200	78 12 14	3182	79 38 45	3163	81 5 38	3147
	Mars W.	25 12 9	3037	26 41 36	3021	28 11 23	3004	29 41 31	2988
	SUN E.	35 3 11	3105	33 35 7	3091	32 6 46	3077	30 38 8	3063
4	Fomalhaut W.	106 14 46	2851	107 48 8	2841	109 21 43	2832	110 55 30	2822
	α Pegasi W.	88 24 59	3069	89 53 46	3056	91 22 50	3043	92 52 10	3030
	α Arietis W.	44 58 40	2920	46 30 34	2891	48 3 4	2866	49 36 6	2841
	Mars W.	37 17 9	2909	38 49 16	2895	40 21 41	2880	41 54 26	2866
	SUN E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
7	Mars W.	75 29 55	2607	77 8 41	2597	78 47 40	2588	80 26 51	2580
	Jupiter W.	57 47 21	2441	59 29 58	2432	61 12 47	2423	62 55 49	2415
	Saturn E.	65 12 16	2398	63 28 38	2389	61 44 48	2382	60 0 47	2375
8	SUN W.	27 29 7	2629	29 7 23	2622	30 45 48	2615	32 24 22	2610
	Saturn E.	51 18 12	2342	49 33 14	2337	47 48 9	2333	46 2 57	2328
	Spica ♀ E.	68 15 41	2353	66 30 59	2348	64 46 10	2344	63 1 15	2341
	Antares E.	114 10 0	2348	112 25 11	2342	110 40 12	2336	108 55 5	2330
9	SUN W.	40 39 1	2586	42 18 15	2583	43 57 33	2579	45 36 57	2577
	Saturn E.	37 15 30	2312	35 29 48	2311	33 44 4	2309	31 58 18	2309
	Spica ♀ E.	54 15 31	2328	52 30 13	2328	50 44 54	2327	48 59 34	2328
	Antares E.	100 7 35	2307	98 21 46	2304	96 35 52	2301	94 49 54	2298
10	SUN W.	53 54 44	2567	55 34 24	2566	57 14 6	2565	58 53 49	2566
	Venus W.	22 2 57	2670	23 40 17	2666	25 17 43	2663	26 55 13	2660
	Saturn E.	23 9 33	2317	21 23 58	2322	19 38 31	2330	17 53 15	2337
	Spica ♀ E.	40 13 25	2341	38 28 25	2346	36 43 33	2353	34 58 50	2361
	Antares E.	85 59 15	2290	84 13 1	2289	82 26 45	2289	80 40 29	2289
11	SUN W.	67 12 26	2566	68 52 7	2566	70 31 48	2569	72 11 26	2569
	Venus W.	35 3 23	2655	36 41 3	2655	38 18 43	2655	39 56 24	2656
	Regulus W.	29 2 24	2309	30 48 11	2305	32 34 3	2302	34 19 59	2301
	Spica ♀ E.	26 19 4	2434	24 36 18	2460	22 54 8	2492	21 12 44	2532
	Antares E.	71 49 15	2292	70 3 4	2294	68 16 55	2296	66 30 50	2298
12	SUN W.	80 29 7	2580	82 8 30	2581	83 47 51	2585	85 27 7	2587
	Venus W.	48 4 21	2663	49 41 50	2666	51 19 16	2668	52 56 39	2671
	Regulus W.	43 10 4	2299	44 56 5	2300	46 42 5	2301	48 28 3	2302
	Antares E.	57 41 14	2312	55 55 32	2317	54 9 57	2320	52 24 27	2325
	α Aquilæ E.	103 48 0	3041	102 18 38	3032	100 49 5	3026	99 19 24	3021
13	SUN W.	93 42 29	2603	95 21 20	2607	97 0 6	2610	98 38 47	2614
	Venus W.	61 2 38	2686	62 39 37	2689	64 16 31	2692	65 53 21	2697
	Regulus W.	57 17 16	2313	59 2 56	2315	60 48 33	2319	62 34 5	2322

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Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	
13	Antares E.	50 39 4	2330	48 53 48	2335	47 8 39	2341	45 23 39	
	α Aquilæ E.	97 49 37	3018	96 19 46	3015	94 49 52	3014	93 19 56	
14	SUN W.	100 17 23	2618	101 55 53	2623	103 34 17	2627	105 12 35	
	Venus W.	67 30 5	2701	69 6 44	2704	70 43 18	2709	72 19 46	
	Regulus W.	64 19 33	2325	66 4 56	2328	67 50 14	2332	69 35 27	
	Saturn W.	26 40 16	2355	28 24 56	2355	30 9 35	2357	31 54 11	
	Antares E.	36 41 9	2388	34 57 17	2398	33 13 40	2410	31 30 20	
	α Aquilæ E.	85 51 0	3036	84 21 32	3045	82 52 15	3054	81 23 9	
	Fomalhaut E.	119 12 57	2546	117 32 47	2543	115 52 33	2540	114 12 15	
15	SUN W.	113 22 34	2656	115 0 13	2660	116 37 46	2666	118 15 11	
	Venus W.	80 20 38	2737	81 56 29	2741	83 32 14	2747	85 7 51	
	Regulus W.	78 20 6	2357	80 4 43	2361	81 49 14	2366	83 33 38	
	Saturn W.	40 36 13	2376	42 20 22	2380	44 4 26	2384	45 48 23	
	α Aquilæ E.	74 1 34	3142	72 34 15	3162	71 7 20	3183	69 40 51	
	Fomalhaut E.	105 50 21	2538	104 10 0	2540	102 29 42	2542	100 49 27	
16	Venus W.	93 4 4	2782	94 38 55	2789	96 13 37	2795	97 48 11	
	Regulus W.	92 13 46	2398	93 57 23	2403	95 40 53	2410	97 24 14	
	Saturn W.	54 26 28	2414	56 9 43	2419	57 52 50	2426	59 35 48	
	Spica η W.	38 29 9	2463	40 11 14	2464	41 53 18	2465	43 35 20	
	Fomalhaut E.	92 29 24	2566	90 49 43	2572	89 10 9	2578	87 30 44	
	α Pegasi E.	109 17 15	2852	107 43 55	2848	106 10 30	2848	104 37 4	
17	Venus W.	105 38 43	2838	107 12 21	2847	108 45 48	2855	110 19 5	
	Saturn W.	68 8 30	2464	69 50 34	2470	71 32 29	2478	73 14 13	
	Spica η W.	52 4 34	2485	53 46 8	2490	55 27 35	2495	57 8 55	
	Fomalhaut E.	79 16 5	2625	77 37 44	2634	75 59 35	2644	74 21 40	
	α Pegasi E.	96 49 57	2856	95 16 41	2861	93 43 32	2866	92 10 30	
18	Saturn W.	81 40 17	2525	83 20 56	2533	85 1 23	2541	86 41 39	
	Spica η W.	65 33 25	2534	67 13 51	2542	68 54 6	2549	70 34 11	
	Fomalhaut E.	66 15 55	2717	64 39 38	2732	63 3 41	2747	61 28 3	
	α Pegasi E.	84 27 44	2916	82 55 46	2929	81 24 4	2940	79 52 36	
19	Saturn W.	94 59 54	2596	96 38 54	2606	98 17 41	2616	99 56 14	
	Spica η W.	78 51 45	2601	80 30 39	2610	82 9 21	2618	83 47 51	
	Antares W.	33 5 27	2653	34 43 10	2655	36 20 50	2660	37 58 24	
	α Pegasi E.	72 19 48	3033	70 50 16	3052	69 21 8	3072	67 52 24	
	α Arietis E.	114 44 59	2726	113 8 54	2733	111 32 58	2738	109 57 9	
20	Saturn W.	108 5 36	2678	109 42 46	2688	111 19 42	2699	112 56 23	
	Spica η W.	91 56 56	2679	93 34 4	2690	95 10 57	2701	96 47 36	
	Antares W.	46 4 22	2698	47 41 5	2706	49 17 37	2714	50 53 59	
	α Arietis E.	102 0 30	2785	100 25 43	2795	98 51 8	2804	97 16 45	
	Mars E.	119 9 42	2887	117 37 7	2898	116 4 45	2909	114 32 38	
21	Spica η W.	104 47 11	2768	106 22 21	2779	107 57 16	2791	109 31 56	
	Antares W.	58 52 45	2769	60 27 53	2780	62 2 47	2790	63 37 28	
	α Arietis E.	89 28 5	2866	87 55 3	2877	86 22 15	2889	84 49 42	
	Mars E.	106 55 33	2978	105 24 52	2988	103 54 24	3000	102 24 11	
	Jupiter E.	117 49 47	2798	116 15 17	2809	114 41 1	2821	113 7 0	
22	Antares W.	71 27 36	2852	73 0 57	2862	74 34 5	2872	76 7 0	

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		° ' "		° ' "		° ' "		° ' "	
13	Antares E.	43 38 48	2354	41 54 7	2361	40 9 36	2368	38 25 16	2378
	α Aquilæ E.	91 50 2	3016	90 20 9	3019	88 50 20	3024	87 20 37	3029
14	Sun W.	106 50 48	2636	108 28 54	2640	110 6 54	2646	111 44 47	2650
	Venus W.	73 56 9	2717	75 32 26	2722	77 8 36	2727	78 44 40	2732
	Regulus W.	71 20 35	2339	73 5 37	2344	74 50 33	2348	76 35 22	2352
	Saturn W.	33 38 44	2362	35 23 13	2365	37 7 38	2368	38 51 58	2372
	Antares E.	29 47 19	2439	28 4 40	2458	26 22 27	2479	24 40 44	2503
	α Aquilæ E.	79 54 16	3078	78 25 39	3091	76 57 18	3106	75 29 16	3123
	Fomalhaut E.	112 31 54	2536	110 51 31	2535	109 11 7	2536	107 30 44	2536
15	Sun W.	119 52 29	2678	121 29 39	2684	123 6 41	2690	124 43 35	2696
	Venus W.	86 43 21	2759	88 18 43	2764	89 53 58	2770	91 29 5	2776
	Regulus W.	85 17 54	2375	87 2 4	2382	88 46 5	2387	90 29 59	2391
	Saturn W.	47 32 14	2394	49 15 58	2398	50 59 36	2403	52 43 6	2409
	α Aquilæ E.	68 14 51	3234	66 49 22	3262	65 24 26	3294	64 0 7	3326
	Fomalhaut E.	99 9 16	2548	97 29 10	2551	95 49 8	2556	94 9 13	2561
16	Venus W.	99 22 36	2809	100 56 52	2816	102 30 59	2824	104 4 56	2832
	Regulus W.	99 7 26	2422	100 50 29	2429	102 33 23	2435	104 16 8	2443
	Saturn W.	61 18 39	2438	63 1 20	2443	64 43 53	2450	66 26 16	2457
	Spica ♀ W.	45 17 20	2470	46 59 16	2473	48 41 7	2476	50 22 54	2481
	Fomalhaut E.	85 51 27	2592	84 12 21	2599	82 33 24	2607	80 54 39	2615
	α Pegasi E.	103 3 35	2846	101 30 7	2848	99 56 41	2849	98 23 17	2852
17	Venus W.	111 52 11	2871	113 25 7	2880	114 57 52	2889	116 30 25	2898
	Saturn W.	74 55 48	2493	76 37 11	2500	78 18 24	2508	79 59 26	2516
	Spica ♀ W.	58 50 6	2507	60 31 10	2514	62 12 4	2520	63 52 49	2527
	Fomalhaut E.	72 44 0	2666	71 6 34	2677	69 29 24	2690	67 52 31	2703
	α Pegasi E.	90 37 36	2880	89 4 52	2887	87 32 17	2897	85 59 54	2907
18	Saturn W.	88 21 43	2559	90 1 34	2568	91 41 13	2577	93 20 40	2586
	Spica ♀ W.	72 14 4	2565	73 53 47	2574	75 33 18	2583	77 12 37	2591
	Fomalhaut E.	59 52 47	2780	58 17 53	2798	56 43 23	2818	55 9 18	2838
	α Pegasi E.	78 21 25	2968	76 50 32	2982	75 19 57	2998	73 49 42	3015
19	Saturn W.	101 34 34	2635	103 12 41	2646	104 50 33	2656	106 28 12	2667
	Spica ♀ W.	85 26 7	2638	87 4 10	2649	88 41 59	2658	90 19 35	2669
	Antares E.	39 35 52	2670	41 13 12	2675	42 50 25	2683	44 27 28	2690
	α Pegasi E.	66 24 7	3116	64 56 17	3140	63 28 56	3165	62 2 5	3192
	α Arietis E.	108 21 30	2752	106 45 59	2760	105 10 39	2768	103 35 29	2776
20	Saturn W.	114 32 49	2722	116 9 0	2732	117 44 57	2744	119 20 39	2755
	Spica ♀ W.	98 24 1	2722	100 0 11	2734	101 36 6	2745	103 11 46	2757
	Antares W.	52 30 8	2732	54 6 6	2741	55 41 52	2750	57 17 25	2760
	α Arietis E.	95 42 34	2824	94 8 37	2833	92 34 52	2845	91 1 22	2855
	Mars E.	113 0 44	2931	111 29 5	2943	109 57 40	2954	108 26 30	2965
21	Spica ♀ W.	111 6 20	2815	112 40 29	2826	114 14 23	2838	115 48 2	2850
	Antares W.	65 11 56	2810	66 46 11	2820	68 20 13	2831	69 54 1	2841
	α Arietis E.	83 17 24	2912	81 45 20	2924	80 13 32	2937	78 42 0	2949
	Mars E.	100 54 12	3023	99 24 28	3035	97 54 58	3046	96 25 42	3057
	Jupiter E.	111 33 13	2843	109 59 41	2854	108 26 23	2865	106 53 19	2876
22	Antares W.	77 39 42	2893	79 12 10	2902	80 44 26	2912	82 16 29	2923

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		° ' "		° ' "		° ' "		° ' "	
22	α Arietis E.	77 10 43	2962	75 39 42	2974	74 8 57	2987	72 38 28	3000
	Mars E.	94 56 40	3069	93 27 52	3080	91 59 18	3091	90 30 57	3103
	Jupiter E.	105 20 29	2887	103 47 53	2898	102 15 31	2909	100 43 23	2919
	Aldebaran E.	107 46 16	2833	106 12 31	2845	104 39 1	2855	103 5 44	2865
23	Antares W.	83 48 19	2932	85 19 57	2942	86 51 23	2951	88 22 37	2961
	α Arietis E.	65 10 10	3068	63 41 21	3082	62 12 49	3096	60 44 35	3110
	Mars E.	83 12 35	3156	81 45 33	3166	80 18 43	3177	78 52 6	3186
	Jupiter E.	93 6 2	2970	91 35 12	2981	90 4 35	2991	88 34 11	3000
	Aldebaran E.	95 22 39	2916	93 50 41	2926	92 18 55	2935	90 47 21	2945
24	Antares W.	95 55 54	3005	97 26 1	3013	98 55 58	3020	100 25 46	3029
	α Arietis E.	53 27 55	3188	52 1 31	3204	50 35 27	3222	49 9 44	3240
	Mars E.	71 41 50	3231	70 16 18	3241	68 50 57	3248	67 25 45	3256
	Jupiter E.	81 4 57	3044	79 35 39	3052	78 6 30	3059	76 37 30	3065
	Aldebaran E.	83 12 24	2989	81 41 57	2997	80 11 40	3005	78 41 33	3012
25	Antares W.	107 52 28	3062	109 21 24	3068	110 50 13	3074	112 18 55	3078
	α Aquilæ W.	64 9 57	3950	65 22 26	3934	66 35 11	3919	67 48 12	3906
	Mars E.	60 21 53	3290	58 57 30	3294	57 33 12	3300	56 9 1	3306
	Jupiter E.	69 14 39	3098	67 46 27	3104	66 18 22	3109	64 50 23	3114
	Aldebaran E.	71 13 8	3044	69 43 50	3050	68 14 39	3056	66 45 35	3061
	SUN E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
26	α Aquilæ W.	73 56 24	3851	75 10 34	3842	76 24 53	3834	77 39 20	3826
	Fomalhaut W.	38 40 35	3545	40 0 9	3518	41 20 13	3494	42 40 44	3478
	Mars E.	49 9 21	3323	47 45 36	3326	46 21 54	3327	44 58 14	3328
	Jupiter E.	57 31 44	3130	56 4 11	3133	54 36 41	3134	53 9 13	3135
	Aldebaran E.	59 21 34	3078	57 52 58	3082	56 24 26	3083	54 55 56	3085
	SUN E.	115 0 15	3438	113 38 41	3439	112 17 9	3441	110 55 39	3443
27	α Aquilæ W.	83 53 21	3797	85 8 26	3792	86 23 37	3788	87 38 52	3784
	Fomalhaut W.	49 28 51	3385	50 51 25	3370	52 14 16	3357	53 37 22	3343
	Mars E.	38 0 5	3328	36 36 26	3326	35 12 45	3325	33 49 2	3322
	Jupiter E.	45 52 1	3134	44 24 33	3133	42 57 3	3131	41 29 31	3128
	Aldebaran E.	47 33 49	3088	46 5 25	3087	44 37 0	3086	43 8 33	3086
	SUN E.	104 8 21	3442	102 46 52	3439	101 25 20	3438	100 3 47	3436
28	α Aquilæ W.	93 56 2	3769	95 11 36	3767	96 27 13	3766	97 42 51	3765
	Fomalhaut W.	60 36 37	3281	62 1 11	3270	63 25 58	3258	64 50 59	3246
	Jupiter E.	34 10 53	3108	32 42 53	3103	31 14 47	3097	29 46 34	3091
	Aldebaran E.	35 45 50	3074	34 17 9	3070	32 48 23	3068	31 19 34	3064
	SUN E.	93 15 4	3414	91 53 3	3408	90 30 56	3403	89 8 43	3395
29	α Aquilæ W.	104 1 8	3767	105 16 45	3769	106 32 20	3772	107 47 51	3776
	Fomalhaut W.	71 59 33	3187	73 25 58	3175	74 52 37	3163	76 19 31	3150
	SUN E.	82 15 28	3355	80 52 20	3345	79 29 0	3335	78 5 29	3325
30	Fomalhaut W.	83 37 48	3087	85 6 14	3073	86 34 57	3060	88 3 55	3047
	α Pegasi W.	67 2 33	3394	68 24 57	3371	69 47 46	3350	71 11 0	3328
	SUN E.	71 4 41	3265	69 35 25	3252	68 14 41	3239	66 49 18	3225
31	α Pegasi W.		3261			81 4 55	3181	81 18	3170
	α Arietis W.					77 28 30	3121	78 10	3086
	SUN E.					72 35 31	3111	73 10	3055

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22	α Arietis E.	71 8 15 3014		69 38 19 3026		68 8 39 3040		66 39 16 3054	
	Mars E.	89 2 51 3113		87 34 57 3124		86 7 17 3134		84 39 49 3146	
	Jupiter E.	99 11 28 2930		97 39 47 2940		96 8 19 2950		94 37 4 2961	
	Aldebaran E.	101 32 40 2876		99 59 50 2887		98 27 14 2896		96 54 50 2906	
23	Antares W.	89 53 39 2970		91 24 29 2978		92 55 9 2988		94 25 37 2997	
	α Arietis E.	59 16 38 3126		57 49 0 3140		56 21 39 3156		54 54 37 3172	
	Mars E.	77 25 40 3196		75 59 26 3205		74 33 23 3215		73 7 31 3224	
	Jupiter E.	87 3 58 3009		85 33 56 3018		84 4 6 3026		82 34 26 3035	
	Aldebaran E.	89 15 59 2954		87 44 49 2962		86 13 49 2972		84 43 1 2981	
24	Antares W.	101 55 23 3035		103 24 52 3043		104 54 12 3049		106 23 24 3056	
	α Arietis E.	47 44 22 3259		46 19 22 3278		44 54 45 3299		43 30 32 3319	
	Mars E.	66 0 42 3264		64 35 48 3271		63 11 2 3277		61 46 24 3283	
	Jupiter E.	75 8 39 3074		73 39 57 3081		72 11 24 3087		70 42 58 3092	
	Aldebaran E.	77 11 35 3019		75 41 46 3026		74 12 5 3033		72 42 33 3039	
25	Antares W.	113 47 31 3084		115 16 0 3088		116 44 24 3093		118 12 42 3098	
	α Aquilæ W.	69 1 26 3892		70 14 54 3881		71 28 33 3870		72 42 23 3859	
	Mars E.	54 44 56 3310		53 20 56 3313		51 57 0 3318		50 33 9 3320	
	Jupiter E.	63 22 30 3118		61 54 42 3122		60 26 59 3125		58 59 20 3128	
	Aldebaran E.	65 16 37 3065		63 47 44 3069		62 18 56 3073		60 50 13 3076	
	SUN E.	120 27 7 3424		119 5 18 3428		117 43 33 3431		116 21 52 3435	
26	α Aquilæ W.	78 53 55 3820		80 8 37 3813		81 23 26 3808		82 38 20 3801	
	Fomalhaut W.	44 1 39 3452		45 22 57 3434		46 44 35 3416		48 6 34 3400	
	Mars E.	43 34 35 3329		42 10 57 3330		40 47 20 3330		39 23 43 3329	
	Jupiter E.	51 41 46 3136		50 14 20 3136		48 46 54 3136		47 19 28 3135	
	Aldebaran E.	53 27 28 3087		51 59 2 3087		50 30 37 3088		49 2 13 3088	
	SUN E.	109 34 11 3443		108 12 43 3444		106 51 16 3444		105 29 49 3443	
27	α Aquilæ W.	88 54 11 3780		90 9 34 3777		91 25 0 3774		92 40 29 3770	
	Fomalhaut W.	55 0 44 3330		56 24 21 3318		57 48 12 3305		59 12 18 3294	
	Mars E.	32 25 16 3319		31 1 27 3316		29 37 34 3312		28 13 36 3308	
	Jupiter E.	40 1 55 3125		38 34 16 3122		37 6 33 3119		35 38 46 3114	
	Aldebaran E.	41 40 6 3083		40 11 36 3082		38 43 4 3078		37 14 28 3077	
	SUN E.	98 42 11 3432		97 20 31 3429		95 58 47 3424		94 36 58 3420	
28	α Aquilæ W.	98 58 30 3764		100 14 10 3764		101 29 50 3764		102 45 30 3766	
	Fomalhaut W.	66 16 14 3234		67 41 43 3223		69 7 25 3210		70 33 22 3198	
	Jupiter E.	28 18 13 3085		26 49 45 3078		25 21 8 3069		23 52 21 3062	
	Aldebaran E.	29 50 40 3062		28 21 44 3058		26 52 43 3055		25 23 38 3051	
	SUN E.	87 46 21 3389		86 23 52 3380		85 1 13 3372		83 38 25 3365	
29	α Aquilæ W.	109 3 18 3781		110 18 40 3787		111 33 56 3794		112 49 4 3802	
	Fomalhaut W.	77 46 40 3138		79 14 4 3125		80 41 43 3112		82 9 38 3100	
	SUN E.	76 41 46 3313		75 17 50 3302		73 53 41 3290		72 29 18 3278	
30	Fomalhaut W.	89 33 10 3034		91 2 41 3020		92 32 29 3006		94 2 34 2993	
	α Pegasi W.	72 34 39 3307		73 58 43 3286		75 23 11 3266		76 48 2 3246	
	SUN E.	65 23 38 3211		63 57 42 3197		62 31 29 3182		61 4 58 3167	
31	α Pegasi W.	83 58 3 3152		85 25 9 3134		86 52 37 3118		88 20 25 3101	
	α Arietis W.	40 24 37 3049		41 53 49 3014		43 23 44 2981		44 54 20 2951	
	SUN E.	53 47 46 3088		52 19 22 3072		50 50 38 3056		49 21 34 3039	

CONFIGURATIONS OF THE SATELLITES OF JUPITER

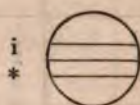
At 14^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>				<i>Apparent East.</i>			
1	4. ●			1. ○ 3.	2.			
2			3. 2.	○	1.	4.		
3		3.	1. 2.	○			4.	
4			3.	○	1.	2.		4.
5			1.	○ 2.	3.			4.
6			2.	○	1.	3.		4.
7				1. ○ 2.		3.	4.	
8	1. ○			○	3.	2.	4.	
9			3. 2.	○	4.			
10		3.	2. 1.	○				
11		4.	3.	○	1. 2.			
12		4.		1. ○ 3.				
13		4.	2.	○	1.	3.		
14		4.		1. ○		3.		
15		4.		○	1.	3.	2.	
16			4.	3. 2.	○ 1.			
17			3.	4. 2. 1.	○			
18	● 4.		3.	○	1. 2.			
19	3. ●		1.	○	2.	4.		
20			2.	○	1.	3.	4.	
21	2. ●		1.	○		3.		4.
22				○	1.	3. 2.		4.
23	1. ●		3. 2.	○				4.
24			3. 2.	1. ○			4.	
25			3.	○	1. 2.	4.		
26				1. ○	4.	2.		
27			2. 4.	○	1.	3.		
28		4.	1. 2.	○		3.		
29		4.		○	1.	3. 2.		
30		4.		3. 1. ○				
31		4.	3. 2.	○				

This Table represents, at 14^h after *Mean Noon* of each day of the month, the relative position of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a scope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	2	^h 6 ^m 36 ^s 32·6	^h 13 ^m 17 ^s 48·3	Im.
	4	1 5 1·0	7 53 15·3	Im.
	5	19 33 31·3	2 28 44·3	Im.
	7*	14 1 58·9	21 4 10·5	Im.
	9	8 30 28·6	15 39 38·9	Im.
	11	2 58 55·6	10 15 4·5	Im.
	12	21 27 24·9	4 50 32·5	Im.
	14	15 55 50·9	23 25 57·1	Im.
	16	10 24 19·5	18 1 24·4	Im.
	18	4 52 45·1	12 36 48·6	Im.
	19	23 21 12·9	7 12 15·1	Im.
	21	17 49 38·2	1 47 39·1	Im.
	23	12 18 5·2	20 23 4·7	Im.
	25	6 46 29·6	14 58 27·7	Im.
	27	1 14 56·3	9 33 53·0	Im.
	28	19 43 19·8	4 9 15·3	Im.
	30*	14 11 45·9	22 44 40·0	Im.
II.	3	18 36 27·2	1 23 37·7	Im.
	7	7 54 26·6	14 55 37·8	Im.
	10	21 13 18·7	4 28 30·8	Im.
	14	10 31 19·0	18 0 32·0	Im.
	17	23 50 12·1	7 33 25·9	Im.
	21	13 8 12·7	21 5 27·3	Im.
	25	2 27 9·6	10 38 25·1	Im.
	28	15 45 9·6	0 10 25·9	Im.
III.	5	1 31 37·4	8 23 52·7	Im.
	5	3 41 43·7	10 34 20·3	Em.
	12	5 32 8·7	12 52 39·4	Im.
	12	7 42 37·0	15 3 29·1	Em.
	19	9 31 56·9	17 20 42·8	Im.
	19	11 42 51·4	19 31 58·9	Em.
	26*	13 31 31·1	21 48 32·3	Im.
	26	15 42 50·3	0 0 13·1	Em.



APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h m
		2 16 23	1 16 48	1 19 4	1 15 55	1 18 3
		4 11 0	3 11 25	3 13 41	3 10 30	3 12 38
		5 5 36	4 6 2	5 8 18	4 5 6	5 7 14
		7 0 13	6 0 39	6 2 55	6 23 42	6 1 49
		9 18 50	8 19 15	8* 21 32	8 18 17	8 20 25
	In	11 13 27	10 13 52	10 16 8	10 12 53	10 15 0
		13 8 3	12 8 29	12 10 45	12 7 28	12 9 36
		14 2 40	13 3 6	13 5 22	13 2 4	13 4 11
	the	16* 21 17	15* 21 43	15 23 59	15 20 39	15 22 47
		18 15 54	17 16 19	17 18 35	17 15 15	17 17 23
		20 10 30	19 10 56	19 13 12	19 9 50	19 11 58
	Shadow.	21 5 7	20 5 32	20 7 48	20 4 26	20 6 34
		23 23 43	22 0 9	22 2 25	22* 23 2	22 1 9
		25 18 20	24 18 46	24 21 2	24 17 37	24 19 45
		27 12 56	26 13 22	26 15 38	26 12 13	26 14 20
		28 7 33	27 7 59	28 10 15	27 6 48	28 8 56
		30 2 9	29 2 35	29 4 51	29 1 24	29 3 31
			31 21 11	31* 23 27	31 19 59	31* 22 7
II.		3 5 39	2 8 13	2 10 50	2 7 1	2 9 19
	In	7 19 17	5 21 52	5 0 28	5 20 32	5 22 50
		11 8 55	9 11 30	9 14 6	9 10 4	9 12 22
	the	14 22 33	12 1 8	12 3 44	12 23 35	12 1 53
		18 12 11	16 14 45	16 17 22	16 13 7	16 15 24
	Shadow.	21 1 48	19 4 23	19 6 59	19 2 38	19 4 55
		25 15 25	23 18 0	23 20 36	23 16 9	23 18 27
		28 5 1	26 7 37	27 10 13	26 5 40	26 7 58
III.			30 21 14	30 23 50	30 19 12	30* 21 30
	5 12 4	5 14 21	1 21 38	1 23 54	1 17 59	1 20 9
	12 16 56	12 19 12	8 2 30	8 4 46	8 22 28	8 0 38
	19* 21 45	19 0 0	15 7 21	16 9 36	15 2 56	15 5 7
	26 2 32	26 4 47	23 12 9	23 14 24	22 7 24	23 9 36
			30 16 54	30 19 9	30 11 53	30 14 5

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time		Mean Equinoctial Time, adding 0 ^h 5050 ^s 48.	From Mean	
	At Mean Midnight,				of			Noon of	
	Logarithms of				Transit			January 1.	
					of the				
	A	B	C	D	First Point of		Days.	Days of the Year.	Fractions of the Year.
					Aries.				
1	+0.4918	-1.3027	+9.2092	-9.3362	^h 17 ^m 20 ^s 55.03	100	181	.496	
2	0.5327	1.3014	9.2187	9.3648	17 16 59.12	101	182	.498	
3	0.5699	1.3000	9.2279	9.3925	17 13 3.20	102	183	.501	
4	+0.6041	-1.2985	+9.2368	-9.4195	17 9 7.29	103	184	.504	
5	0.6357	1.2969	9.2456	9.4458	17 5 11.38	104	185	.507	
6	0.6650	1.2951	9.2541	9.4714	17 1 15.47	105	186	.509	
7	+0.6923	-1.2932	+9.2625	-9.4963	16 57 19.56	106	187	.512	
8	0.7180	1.2911	9.2707	9.5205	16 53 23.65	107	188	.515	
9	0.7420	1.2889	9.2787	9.5441	16 49 27.73	108	189	.517	
10	+0.7647	-1.2866	+9.2865	-9.5670	16 45 31.82	109	190	.520	
11	0.7862	1.2842	9.2941	9.5894	16 41 35.91	110	191	.523	
12	0.8065	1.2816	9.3016	9.6111	16 37 40.00	111	192	.526	
13	+0.8258	-1.2789	+9.3089	-9.6323	16 33 44.09	112	193	.528	
14	0.8442	1.2761	9.3160	9.6529	16 29 48.18	113	194	.531	
15	0.8617	1.2731	9.3230	9.6730	16 25 52.26	114	195	.534	
16	+0.8784	-1.2700	+9.3298	-9.6926	16 21 56.35	115	196	.537	
17	0.8944	1.2667	9.3365	9.7117	16 18 0.44	116	197	.539	
18	0.9097	1.2633	9.3431	9.7302	16 14 4.53	117	198	.542	
19	+0.9244	-1.2597	+9.3495	-9.7483	16 10 8.62	118	199	.545	
20	0.9385	1.2560	9.3558	9.7660	16 6 12.71	119	200	.548	
21	0.9520	1.2521	9.3619	9.7832	16 2 16.80	120	201	.550	
22	+0.9649	-1.2481	+9.3679	-9.8000	15 58 20.89	121	202	.553	
23	0.9774	1.2439	9.3738	9.8164	15 54 24.98	122	203	.556	
24	0.9895	1.2395	9.3796	9.8323	15 50 29.07	123	204	.559	
25	+1.0011	-1.2350	+9.3852	-9.8479	15 46 33.15	124	205	.561	
26	1.0123	1.2303	9.3907	9.8631	15 42 37.24	125	206	.564	
27	1.0230	1.2254	9.3962	9.8779	15 38 41.33	126	207	.567	
28	+1.0335	-1.2204	+9.4015	-9.8923	15 34 45.42	127	208	.569	
29	1.0435	1.2152	9.4067	9.9064	15 30 49.51	128	209	.572	
30	1.0532	1.2097	9.4118	9.9201	15 26 53.60	129	210	.575	
31	1.0626	1.2041	9.4168	9.9335	15 22 57.69	130	211	.578	
32	+1.0717	-1.1983	+9.4217	-9.9466	15 19 1.78	131	212	.580	

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		subt. from Apparent Time.	
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Frid.	1	8 44 28.25	9.710	N. 18 6 20.5	37.96	1 6.60	6 0.02	0.147
Sat.	2	8 48 21.28	9.685	17 51 9.4	38.70	1 6.52	5 56.50	0.171
Sun.	3	8 52 13.72	9.660	17 35 40.7	39.41	1 6.43	5 52.40	0.196
Mon.	4	8 56 5.56	9.635	17 19 54.8	40.12	1 6.34	5 47.70	0.221
Tues.	5	8 59 56.80	9.610	17 3 51.9	40.81	1 6.26	5 42.40	0.245
Wed.	6	9 3 47.45	9.585	16 47 32.5	41.50	1 6.17	5 36.51	0.271
Thur.	7	9 7 37.49	9.560	16 30 56.6	42.16	1 6.09	5 30.00	0.295
Frid.	8	9 11 26.93	9.535	16 14 4.8	42.82	1 6.00	5 22.91	0.320
Sat.	9	9 15 15.77	9.510	15 56 57.2	43.45	1 5.92	5 15.22	0.345
Sun.	10	9 19 4.02	9.485	15 39 34.5	44.08	1 5.84	5 6.93	0.370
Mon.	11	9 22 51.67	9.462	15 21 56.5	44.69	1 5.75	4 58.06	0.394
Tues.	12	9 26 38.75	9.438	15 4 4.0	45.29	1 5.67	4 48.60	0.418
Wed.	13	9 30 25.25	9.413	14 45 57.0	45.88	1 5.59	4 38.58	0.442
Thur.	14	9 34 11.17	9.390	14 27 36.0	46.45	1 5.51	4 27.97	0.465
Frid.	15	9 37 56.53	9.368	14 9 1.1	47.01	1 5.43	4 16.81	0.488
Sat.	16	9 41 41.35	9.345	13 50 12.9	47.56	1 5.35	4 5.10	0.509
Sun.	17	9 45 25.64	9.324	13 31 11.4	48.10	1 5.28	3 52.88	0.531
Mon.	18	9 49 9.42	9.303	13 11 57.1	48.61	1 5.21	3 40.13	0.553
Tues.	19	9 52 52.68	9.282	12 52 30.4	49.12	1 5.13	3 26.87	0.573
Wed.	20	9 56 35.44	9.262	12 32 51.5	49.63	1 5.06	3 13.12	0.593
Thur.	21	10 0 17.73	9.243	12 13 0.5	50.10	1 4.99	2 58.89	0.612
Frid.	22	10 3 59.56	9.225	11 52 58.0	50.58	1 4.92	2 44.21	0.630
Sat.	23	10 7 40.96	9.207	11 32 44.1	51.04	1 4.86	2 29.09	0.647
Sun.	24	10 11 21.93	9.190	11 12 19.1	51.48	1 4.79	2 13.56	0.665
Mon.	25	10 15 2.49	9.173	10 51 43.5	51.92	1 4.73	1 57.60	0.681
Tues.	26	10 18 42.65	9.158	10 30 57.3	52.33	1 4.67	1 41.25	0.697
Wed.	27	10 22 22.43	9.143	10 10 1.3	52.75	1 4.61	1 24.52	0.712
Thur.	28	10 26 1.85	9.128	9 48 55.3	53.15	1 4.56	1 7.44	0.726
Frid.	29	10 29 40.93	9.113	9 27 39.7	53.53	1 4.51	0 50.01	0.741
Sat.	30	10 33 19.65	9.101	9 6 15.0	53.90	1 4.46	0 32.22	0.753
Sun.	31	10 36 58.07	9.087	8 44 41.5	54.25	1 4.41	0 14.14	0.767
Mon.	32	10 40 36.16		N. 8 22 59.6		1 4.37	0 4.27	

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be added to subt. from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
Frid.	1	^h 8 ^m 44 ^s 27·28	[°] N. 18 ['] 6 ["] 24·3	['] 15 ["] 47·0	^m 6 ^s 0·03	^h 8 ^m 38 ^s 27·25
Sat.	2	8 48 20·32	17 51 13·2	15 47·1	5 56·52	8 42 23·80
Sun.	3	8 52 12·78	17 35 44·5	15 47·3	5 52·42	8 46 20·36
Mon.	4	8 56 4·63	17 19 58·6	15 47·4	5 47·72	8 50 16·91
Tues.	5	8 59 55·89	17 3 55·7	15 47·6	5 42·42	8 54 13·47
Wed.	6	9 3 46·55	16 47 36·3	15 47·7	5 36·53	8 58 10·02
Thur.	7	9 7 36·61	16 31 0·4	15 47·9	5 30·03	9 2 6·58
Frid.	8	9 11 26·08	16 14 8·6	15 48·0	5 22·94	9 6 3·14
Sat.	9	9 15 14·94	15 57 1·0	15 48·2	5 15·25	9 9 59·69
Sun.	10	9 19 3·21	15 39 38·2	15 48·3	5 6·96	9 13 56·25
Mon.	11	9 22 50·89	15 22 0·2	15 48·5	4 58·09	9 17 52·80
Tues.	12	9 26 37·99	15 4 7·6	15 48·7	4 48·63	9 21 49·36
Wed.	13	9 30 24·52	14 46 0·5	15 48·9	4 38·61	9 25 45·91
Thur.	14	9 34 10·47	14 27 39·4	15 49·0	4 28·00	9 29 42·47
Frid.	15	9 37 55·86	14 9 4·5	15 49·2	4 16·84	9 33 39·02
Sat.	16	9 41 40·71	13 50 16·1	15 49·4	4 5·13	9 37 35·58
Sun.	17	9 45 25·04	13 31 14·5	15 49·6	3 52·91	9 41 32·13
Mon.	18	9 49 8·85	13 12 0·1	15 49·8	3 40·16	9 45 28·69
Tues.	19	9 52 52·14	12 52 33·2	15 50·0	3 26·90	9 49 25·24
Wed.	20	9 56 34·94	12 32 54·1	15 50·2	3 13·15	9 53 21·79
Thur.	21	10 0 17·27	12 13 3·0	15 50·4	2 58·92	9 57 18·35
Frid.	22	10 3 59·14	11 53 0·3	15 50·6	2 44·24	10 1 14·90
Sat.	23	10 7 40·58	11 32 46·2	15 50·8	2 29·12	10 5 11·46
Sun.	24	10 11 21·59	11 12 21·0	15 51·0	2 13·58	10 9 8·01
Mon.	25	10 15 2·19	10 51 45·2	15 51·2	1 57·62	10 13 4·57
Tues.	26	10 18 42·39	10 30 58·8	15 51·4	1 41·27	10 17 1·12
Wed.	27	10 22 22·21	10 10 2·5	15 51·6	1 24·54	10 20 57·67
Thur.	28	10 26 1·68	9 48 56·2	15 51·8	1 7·45	10 24 54·23
Frid.	29	10 29 40·80	9 27 40·4	15 52·0	0 50·02	10 28 50·78
Sat.	30	10 33 19·57	9 6 15·5	15 52·3	0 32·23	10 32 47·34
Sun.	31	10 36 58·03	8 44 41·7	15 52·5	0 14·14	10 36 43·89
Mon.	32	10 40 36·17	N. 8 22 59·5	15 52·7	0 4·27	10 40 40·44

* The Semidiameter for *Apparent Noon* may be assumed the same as that for *Mean Noon*.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	128° 40' 53" 8	S. 0° 20'	0.0063245	15° 24' 7"	15° 31' 2"	56° 33' 4"	56° 57' 5"
2	129° 38' 21" 2	S. 0° 08'	0.0062662	15° 37' 9"	15° 44' 6"	57° 21' 8"	57° 46' 3"
3	130° 35' 50" 0	N. 0° 04'	0.0062057	15° 51' 1"	15° 57' 3"	58° 10' 4"	58° 33' 2"
4	131° 33' 19" 7	0° 13'	0.0061427	16° 3' 2"	16° 8' 5"	58° 54' 7"	59° 14' 0"
5	132° 30' 50" 6	0° 21'	0.0060774	16° 13' 1"	16° 16' 9"	59° 30' 9"	59° 45' 1"
6	133° 28' 22" 4	0° 28'	0.0060099	16° 19' 9"	16° 22' 0"	59° 56' 0"	60° 3' 6"
7	134° 25' 55" 2	0° 29'	0.0059400	16° 23' 2"	16° 23' 4"	60° 7' 9"	60° 8' 9"
8	135° 23' 29" 1	0° 30'	0.0058680	16° 22' 9"	16° 21' 5"	60° 6' 8"	60° 1' 7"
9	136° 21' 3' 9"	0° 28'	0.0057937	16° 19' 4"	16° 16' 7"	59° 54' 1"	59° 44' 2"
10	137° 18' 39" 6	0° 22'	0.0057175	16° 13' 5"	16° 9' 9"	59° 32' 5"	59° 19' 1"
11	138° 16' 16" 2	0° 14'	0.0056395	16° 5' 9"	16° 1' 8"	59° 4' 7"	58° 49' 5"
12	139° 13' 53" 8	N. 0° 05'	0.0055596	15° 57' 5"	15° 53' 1"	58° 33' 7"	58° 17' 5"
13	140° 11' 32" 5	S. 0° 08'	0.0054781	15° 48' 6"	15° 44' 1"	58° 1' 0"	57° 44' 6"
14	141° 9' 12" 0	0° 20'	0.0053952	15° 39' 6"	15° 35' 2"	57° 28' 2"	57° 11' 9"
15	142° 6' 52" 6	0° 32'	0.0053109	15° 30' 9"	15° 26' 6"	56° 56' 0"	56° 40' 3"
16	143° 4' 34" 3	0° 43'	0.0052255	15° 22' 4"	15° 18' 2"	56° 24' 9"	56° 9' 7"
17	144° 2' 17" 3	0° 55'	0.0051388	15° 14' 2"	15° 10' 3"	55° 54' 9"	55° 40' 7"
18	145° 0' 1' 5"	0° 64'	0.0050512	15° 6' 6"	15° 3' 1"	55° 26' 9"	55° 13' 8"
19	145° 57' 46" 9	0° 72'	0.0049626	14° 59' 7"	14° 56' 6"	55° 1' 7"	54° 50' 3"
20	146° 55' 33" 7	0° 76'	0.0048732	14° 53' 7"	14° 51' 2"	54° 39' 8"	54° 30' 3"
21	147° 53' 22" 0	0° 79'	0.0047829	14° 48' 9"	14° 47' 1"	54° 22' 1"	54° 15' 4"
22	148° 51' 11" 9	0° 78'	0.0046916	14° 45' 7"	14° 44' 8"	54° 10' 2"	54° 6' 5"
23	149° 49' 3' 5"	0° 74'	0.0045994	14° 44' 1"	14° 44' 1"	54° 4' 4"	54° 4' 5"
24	150° 46' 56" 7	0° 68'	0.0045062	14° 44' 7"	14° 45' 8"	54° 6' 6"	54° 10' 8"
25	151° 44' 51" 7	0° 60'	0.0044120	14° 47' 6"	14° 50' 0"	54° 17' 2"	54° 26' 1"
26	152° 42' 48" 5	0° 50'	0.0043167	14° 53' 1"	14° 56' 8"	54° 37' 4"	54° 51' 0"
27	153° 40' 47" 1	0° 38'	0.0042202	15° 1' 2"	15° 6' 2"	55° 7' 1"	55° 25' 6"
28	154° 38' 47" 7	0° 25'	0.0041224	15° 11' 9"	15° 18' 1"	55° 46' 3"	56° 9' 1"
29	155° 36' 50" 1	0° 13'	0.0040232	15° 24' 8"	15° 32' 0"	56° 33' 9"	57° 0' 2"
30	156° 34' 54" 3	S. 0° 01'	0.0039224	15° 39' 5"	15° 47' 1"	57° 27' 5"	57° 55' 5"
31	157° 33' 0' 5"	N. 0° 09'	0.0038201	15° 54' 7"	16° 2' 1"	58° 23' 4"	58° 50' 8"
32	158° 31' 8' 4"	N. 0° 17'	0.0037165	16° 9' 3"	16° 15' 9"	59° 17' 0"	59° 41' 4"

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	Longitude.		Latitude.		Age.	Meridian Passage.
		Noon.	Midnight.	Noon.	Midnight.		
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d ^m	^h ^m
Frid.	1	80 48 50.7	87 18 31.5	S. 0 28 6.1	N. 0 7 3.9	25.6	21 29.0
Sat.	2	93 54 8.6	100 35 52.3	N. 0 42 38.3	1 18 8.1	26.6	22 26.5
Sun.	3	107 23 44.5	114 17 39.3	1 53 1.5	2 26 44.3	27.6	23 25.3
Mon.	4	121 17 20.7	128 22 23.5	2 58 41.0	3 28 15.2	28.6	♂
Tues.	5	135 32 13.5	142 46 8.7	3 54 51.3	4 17 55.9	0.2	0 23.6
Wed.	6	150 3 20.5	157 22 54.6	4 36 58.8	4 51 35.1	1.2	1 20.1
Thur.	7	164 43 53.8	172 5 21.1	5 1 25.5	5 6 17.8	2.2	2 14.3
Frid.	8	179 26 20.6	186 46 1.6	5 6 6.7	5 0 54.9	3.2	3 6.5
Sat.	9	194 3 38.5	201 18 33.2	4 50 51.0	4 36 10.3	4.2	3 57.3
Sun.	10	208 30 14.7	215 38 20.4	4 17 13.0	3 54 24.0	5.2	4 47.9
Mon.	11	222 42 34.6	229 42 49.8	3 28 10.8	2 59 3.6	6.2	5 39.2
Tues.	12	236 39 2.0	243 31 14.4	2 27 33.1	1 54 12.4	7.2	6 31.9
Wed.	13	250 19 32.0	257 4 3.3	1 19 33.0	N. 0 44 6.4	8.2	7 26.3
Thur.	14	263 44 57.6	270 22 25.7	N. 0 8 23.7	S. 0 27 5.8	9.2	8 21.8
Frid.	15	276 56 37.0	283 27 40.9	S. 1 1 53.9	1 35 34.2	10.2	9 17.6
Sat.	16	289 55 46.0	296 20 58.7	2 7 42.2	2 37 55.4	11.2	10 12.2
Sun.	17	302 43 25.0	309 3 8.6	3 5 53.9	3 31 19.9	12.2	11 4.6
Mon.	18	315 20 13.4	321 34 42.1	3 53 58.0	4 13 36.4	13.2	11 53.9
Tues.	19	327 46 38.9	333 56 5.3	4 30 4.3	4 43 14.9	14.2	12 40.2
Wed.	20	340 3 8.3	346 7 52.8	4 53 3.3	4 59 27.3	15.2	13 23.9
Thur.	21	352 10 27.7	358 11 4.0	5 2 26.3	5 2 2.3	16.2	14 5.6
Frid.	22	4 9 55.3	10 7 18.1	4 58 18.7	4 51 20.6	17.2	14 46.1
Sat.	23	16 3 31.7	21 58 59.6	4 41 14.0	4 28 5.8	18.2	15 26.4
Sun.	24	27 54 7.1	33 49 22.9	4 12 4.7	3 53 20.1	19.2	16 7.5
Mon.	25	39 45 17.5	45 42 25.8	3 32 1.3	3 8 19.3	20.2	16 50.2
Tues.	26	51 41 23.0	57 42 46.5	2 42 24.8	2 14 30.8	21.2	17 35.4
Wed.	27	63 47 15.0	69 55 28.4	1 44 51.1	1 13 40.4	22.2	18 23.8
Thur.	28	76 8 5.0	82 25 42.9	S. 0 41 15.0	S. 0 7 54.4	23.2	19 15.7
Frid.	29	88 48 58.0	95 18 22.6	N. 0 26 0.8	N. 1 0 6.6	24.2	20 10.9
Sat.	30	101 54 23.6	108 37 22.0	1 33 57.8	2 7 3.9	25.2	21 8.4
Sun.	31	115 27 30.2	122 24 51.9	2 38 54.0	3 8 54.0	26.2	22 6.8
Mon.	32	129 29 17.5	136 40 27.5	N. 3 36 29.0	N. 4 1 3.5	27.2	23 4.5

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10°.	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10°.
FRIDAY 1.				SUNDAY 3.			
0	5 20 8.97	N. 22 40 31.1	50.56	0	7 16 29.38	N. 24 11 47.1	57.00
1	5 22 27.67	22 45 34.4	49.26	1	7 18 59.88	24 10 4.9	58.50
2	5 24 46.72	22 50 30.6	48.16	2	7 21 30.48	24 8 13.4	59.15
3	5 27 6.10	22 55 19.6	46.95	3	7 24 1.19	24 6 12.5	59.72
4	5 29 25.81	23 0 1.3	45.72	4	7 26 31.98	24 4 2.2	60.19
5	5 31 45.87	23 4 35.6	44.49	5	7 29 2.86	24 1 42.5	60.56
6	5 34 6.25	23 9 2.5	43.24	6	7 31 33.82	23 59 13.4	60.83
7	5 36 26.96	23 13 22.0	41.99	7	7 34 4.84	23 56 34.8	60.90
8	5 38 48.00	23 17 33.9	40.72	8	7 36 35.93	23 53 46.8	60.97
9	5 41 9.37	23 21 38.2	39.44	9	7 39 7.08	23 50 49.4	61.15
10	5 43 31.05	23 25 34.9	38.16	10	7 41 38.28	23 47 42.5	61.72
11	5 45 53.05	23 29 23.8	36.86	11	7 44 9.52	23 44 26.2	62.79
12	5 48 15.36	23 33 4.9	35.55	12	7 46 40.80	23 41 0.4	63.86
13	5 50 37.99	23 36 38.3	34.24	13	7 49 12.11	23 37 25.2	64.84
14	5 53 0.92	23 40 3.7	32.91	14	7 51 43.44	23 33 40.6	65.91
15	5 55 24.15	23 43 21.1	31.57	15	7 54 14.78	23 29 46.6	66.97
16	5 57 47.68	23 46 30.5	30.22	16	7 56 46.13	23 25 43.2	67.14
17	6 0 11.51	23 49 31.9	28.86	17	7 59 17.49	23 21 30.3	67.70
18	6 2 35.63	23 52 25.0	27.50	18	8 1 48.83	23 17 8.1	68.26
19	6 5 0.03	23 55 10.0	26.12	19	8 4 20.17	23 12 36.5	68.82
20	6 7 24.72	23 57 46.7	24.73	20	8 6 51.49	23 7 55.6	69.38
21	6 9 49.69	24 0 15.1	23.34	21	8 9 22.78	23 3 5.3	69.93
22	6 12 14.92	24 2 35.1	21.93	22	8 11 54.04	22 58 5.8	70.48
23	6 14 40.43	N. 24 4 45.8	20.52	23	8 14 25.27	N. 22 52 56.9	70.92
SATURDAY 2.				MONDAY 4.			
0	6 17 6.20	N. 24 6 49.9	19.10	0	8 16 56.45	N. 22 47 38.8	71.56
1	6 19 32.23	24 8 44.5	17.67	1	8 19 27.58	22 42 11.4	72.10
2	6 21 58.51	24 10 30.4	16.23	2	8 21 58.65	22 36 34.9	72.63
3	6 24 25.05	24 12 7.8	14.78	3	8 24 29.66	22 30 49.1	73.15
4	6 26 51.82	24 13 36.5	13.33	4	8 27 0.60	22 24 54.2	73.67
5	6 29 18.83	24 14 56.4	11.87	5	8 29 31.46	22 18 50.2	74.18
6	6 31 46.08	24 16 7.6	10.40	6	8 32 2.25	22 12 37.1	74.69
7	6 34 13.55	24 17 10.0	8.92	7	8 34 32.94	22 6 15.0	75.19
8	6 36 41.24	24 18 3.6	7.44	8	8 37 3.55	21 59 43.9	75.68
9	6 39 9.15	24 18 48.2	5.95	9	8 39 34.05	21 53 3.8	76.17
10	6 41 37.27	24 19 23.9	4.46	10	8 42 4.45	21 46 14.8	76.65
11	6 44 5.59	24 19 50.7	2.96	11	8 44 34.75	21 39 16.9	77.12
12	6 46 34.10	24 20 8.4	1.45	12	8 47 4.92	21 32 10.2	77.58
13	6 49 2.81	24 20 17.1	0.06	13	8 49 34.98	21 24 54.7	78.04
14	6 51 31.70	24 20 16.7	1.58	14	8 52 4.91	21 17 30.5	78.48
15	6 54 0.77	24 20 7.2	3.11	15	8 54 34.71	21 9 57.6	78.92
16	6 56 30.02	24 19 48.6	4.63	16	8 57 4.38	21 2 16.1	79.35
17	6 58 59.43	24 19 20.8	6.17	17	8 59 33.90	20 54 26.0	79.77
18	7 1 28.99	24 18 43.8	7.71	18	9 2 3.28	20 46 27.4	80.18
19	7 3 58.71	24 17 57.5	9.25	19	9 4 32.52	20 38 20.3	80.58
20	7 6 28.58	24 17 2.1	10.80	20	9 7 1.60	20 30 4.8	80.97
21	7 8 58.59	24 15 57.3	12.35	21	9 9 30.52	20 21 41.0	81.35
22	7 11 28.73	24 14 43.2	13.90	22	9 11 59.29	20 13 8.9	81.72
23	7 13 59.00	24 13 19.8	15.46	23	9 14 27.88	20 4 28.6	82.08
24	7 16 29.38	N. 24 11 47.1		24	9 16 56.31	N. 19 55 40.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 5.				THURSDAY 7.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	9 16 56.31	N. 19 55 40.2	89.42	0	11 11 39.29	N. 10 38 51.8	137.85
1	9 19 24.56	19 46 43.6	90.76	1	11 13 57.44	10 25 4.7	138.47
2	9 21 52.64	19 37 39.1	92.09	2	11 16 15.39	10 11 13.8	139.08
3	9 24 20.53	19 28 26.6	93.40	3	11 18 33.14	9 57 19.4	139.67
4	9 26 48.24	19 19 6.2	94.70	4	11 20 50.70	9 43 21.3	140.25
5	9 29 15.77	19 9 38.0	95.99	5	11 23 8.07	9 29 19.8	140.81
6	9 31 43.10	19 0 2.0	97.27	6	11 25 25.25	9 15 15.0	141.35
7	9 34 10.25	18 50 18.4	98.53	7	11 27 42.24	9 1 6.9	141.87
8	9 36 37.19	18 40 27.2	99.78	8	11 29 59.05	8 46 55.7	142.38
9	9 39 3.94	18 30 28.5	101.02	9	11 32 15.67	8 32 41.4	142.87
10	9 41 30.49	18 20 22.4	102.25	10	11 34 32.12	8 18 24.1	143.35
11	9 43 56.84	18 10 8.9	103.46	11	11 36 48.38	8 4 4.0	143.81
12	9 46 22.98	17 59 48.1	104.66	12	11 39 4.48	7 49 41.2	144.25
13	9 48 48.91	17 49 20.1	105.85	13	11 41 20.40	7 35 15.7	144.68
14	9 51 14.64	17 38 45.0	107.02	14	11 43 36.16	7 20 47.6	145.08
15	9 53 40.15	17 28 2.9	108.18	15	11 45 51.75	7 6 17.1	145.48
16	9 56 5.45	17 17 13.8	109.32	16	11 48 7.18	6 51 44.3	145.85
17	9 58 30.54	17 6 17.9	110.45	17	11 50 22.46	6 37 9.2	146.21
18	10 0 55.41	16 55 15.2	111.57	18	11 52 37.58	6 22 31.9	146.56
19	10 3 20.07	16 44 5.7	112.67	19	11 54 52.54	6 7 52.6	146.88
20	10 5 44.51	16 32 49.7	113.76	20	11 57 7.36	5 53 11.3	147.19
21	10 8 8.72	16 21 27.1	114.83	21	11 59 22.03	5 38 28.1	147.49
22	10 10 32.72	16 9 58.2	115.89	22	12 1 36.56	5 23 43.2	147.77
23	10 12 56.50	N. 15 58 22.8	116.93	23	12 3 50.95	N. 5 8 56.6	148.03
WEDNESDAY 6.				FRIDAY 8.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	10 15 20.05	N. 15 46 41.2	117.96	0	12 6 5.21	N. 4 54 8.4	148.27
1	10 17 43.38	15 34 53.5	118.97	1	12 8 19.34	4 39 18.8	148.50
2	10 20 6.49	15 22 59.7	119.96	2	12 10 33.34	4 24 27.8	148.72
3	10 22 29.38	15 10 59.9	120.94	3	12 12 47.21	4 9 35.5	148.91
4	10 24 52.05	14 58 54.2	121.91	4	12 15 0.97	3 54 42.0	149.09
5	10 27 14.49	14 46 42.8	122.86	5	12 17 14.60	3 39 47.4	149.26
6	10 29 36.71	14 34 25.6	123.79	6	12 19 28.13	3 24 51.9	149.41
7	10 31 58.70	14 22 2.9	124.71	7	12 21 41.54	3 9 55.4	149.54
8	10 34 20.48	14 9 34.6	125.61	8	12 23 54.85	2 54 58.2	149.66
9	10 36 42.03	13 57 0.9	126.50	9	12 26 8.05	2 40 0.2	149.76
10	10 39 3.36	13 44 21.9	127.37	10	12 28 21.16	2 25 1.6	149.85
11	10 41 24.47	13 31 37.7	128.23	11	12 30 34.17	2 10 2.5	149.92
12	10 43 45.36	13 18 48.3	129.06	12	12 32 47.09	1 55 3.0	149.98
13	10 46 6.03	13 5 53.9	129.89	13	12 34 59.92	1 40 3.2	150.01
14	10 48 26.48	12 52 54.6	130.69	14	12 37 12.67	1 25 3.1	150.04
15	10 50 46.72	12 39 50.5	131.48	15	12 39 25.34	1 10 2.9	150.05
16	10 53 6.74	12 26 41.6	132.25	16	12 41 37.93	0 55 2.6	150.04
17	10 55 26.54	12 13 28.1	133.01	17	12 43 50.45	0 40 2.3	150.02
18	10 57 46.13	12 0 10.0	133.75	18	12 46 2.91	0 25 2.2	149.98
19	11 0 5.51	11 46 47.5	134.48	19	12 48 15.30	N. 0 10 2.3	149.93
20	11 2 24.68	11 33 20.6	135.18	20	12 50 27.62	S. 0 4 57.2	149.86
21	11 4 43.64	11 19 49.5	135.87	21	12 52 39.90	0 19 56.4	149.78
22	11 7 2.39	11 6 14.3	136.55	22	12 54 52.12	0 34 55.1	149.68
23	11 9 20.94	10 52 35.0	137.21	23	12 57 4.29	0 49 53.1	149.57
24	11 11 39.29	N. 10 38 51.8		24	12 59 16.42	S. 1 4 50.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 9.				MONDAY 11.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	12 59 16.42	S. 1 4 50.5	149.44	0	14 45 20.55	S. 12 21 31.2	126.87
1	13 1 28.51	1 19 47.2	149.30	1	14 47 35.01	12 34 12.4	126.08
2	13 3 40.56	1 34 42.9	149.14	2	14 49 49.59	12 46 48.9	125.28
3	13 5 52.58	1 49 37.8	148.96	3	14 52 4.29	12 59 20.6	124.47
4	13 8 4.57	2 4 31.6	148.78	4	14 54 19.13	13 11 47.4	123.64
5	13 10 16.54	2 19 24.2	148.58	5	14 56 34.10	13 24 9.3	122.81
6	13 12 28.49	2 34 15.7	148.36	6	14 58 49.20	13 36 26.1	121.96
7	13 14 40.42	2 49 5.8	148.13	7	15 1 4.43	13 48 37.9	121.10
8	13 16 52.34	3 3 54.6	147.88	8	15 3 19.81	14 0 44.5	120.23
9	13 19 4.24	3 18 41.9	147.62	9	15 5 35.32	14 12 45.9	119.35
10	13 21 16.15	3 33 27.7	147.35	10	15 7 50.98	14 24 42.0	118.46
11	13 23 28.05	3 48 11.8	147.06	11	15 10 6.77	14 36 32.7	117.55
12	13 25 39.95	4 2 54.1	146.76	12	15 12 22.71	14 48 18.0	116.64
13	13 27 51.86	4 17 34.7	146.44	13	15 14 38.79	14 59 57.9	115.71
14	13 30 3.78	4 32 13.3	146.11	14	15 16 55.02	15 11 32.2	114.77
15	13 32 15.71	4 46 50.0	145.77	15	15 19 11.40	15 23 0.8	113.82
16	13 34 27.66	5 1 24.6	145.41	16	15 21 27.93	15 34 23.7	112.86
17	13 36 39.63	5 15 57.0	145.03	17	15 23 44.61	15 45 40.9	111.89
18	13 38 51.63	5 30 27.2	144.65	18	15 26 1.44	15 56 52.3	110.91
19	13 41 3.66	5 44 55.1	144.25	19	15 28 18.42	16 7 57.7	109.92
20	13 43 15.71	5 59 20.6	143.83	20	15 30 35.56	16 18 57.2	108.91
21	13 45 27.81	6 13 43.6	143.40	21	15 32 52.85	16 29 50.7	107.90
22	13 47 39.95	6 28 4.0	142.96	22	15 35 10.29	16 40 38.1	106.87
23	13 49 52.12	S. 6 42 21.7	142.50	23	15 37 27.90	S. 16 51 19.3	105.84
SUNDAY 10.				TUESDAY 12.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	13 52 4.35	S. 6 56 36.8	142.03	0	15 39 45.66	S. 17 1 54.4	104.79
1	13 54 16.63	7 10 49.0	141.55	1	15 42 3.58	17 12 23.1	103.73
2	13 56 28.96	7 24 58.3	141.05	2	15 44 21.65	17 22 45.5	102.67
3	13 58 41.35	7 39 4.6	140.55	3	15 46 39.89	17 33 1.5	101.59
4	14 0 53.80	7 53 7.9	140.02	4	15 48 58.28	17 43 11.0	100.50
5	14 3 6.31	8 7 8.0	139.49	5	15 51 16.83	17 53 14.0	99.41
6	14 5 18.89	8 21 4.9	138.94	6	15 53 35.54	18 3 10.5	98.30
7	14 7 31.55	8 34 58.6	138.38	7	15 55 54.40	18 13 0.3	97.19
8	14 9 44.28	8 48 48.8	137.80	8	15 58 13.42	18 22 43.4	96.06
9	14 11 57.08	9 2 35.6	137.21	9	16 0 32.60	18 32 19.8	94.93
10	14 14 9.97	9 16 18.9	136.61	10	16 2 51.93	18 41 49.3	93.78
11	14 16 22.94	9 29 58.5	136.00	11	16 5 11.42	18 51 12.0	92.62
12	14 18 36.00	9 43 34.5	135.37	12	16 7 31.07	19 0 27.8	91.47
13	14 20 49.15	9 57 6.7	134.73	13	16 9 50.87	19 9 36.6	90.30
14	14 23 2.39	10 10 35.1	134.08	14	16 12 10.82	19 18 38.4	89.12
15	14 25 15.72	10 23 59.6	133.41	15	16 14 30.92	19 27 33.1	87.92
16	14 27 29.16	10 37 20.1	132.74	16	16 16 51.18	19 36 20.7	86.73
17	14 29 42.70	10 50 36.5	132.05	17	16 19 11.59	19 45 1.1	85.53
18	14 31 56.34	11 3 48.7	131.34	18	16 21 32.14	19 53 34.3	84.31
19	14 34 10.09	11 16 56.8	130.63	19	16 23 52.84	20 2 0.2	83.09
20	14 36 23.95	11 30 0.6	129.90	20	16 26 13.69	20 10 18.7	81.86
21	14 38 37.93	11 42 59.9	129.16	21	16 28 34.69	20 18 29.9	80.62
22	14 40 52.02	11 55 54.9	128.41	22	16 30 55.82	20 26 33.6	79.38
23	14 43 6.22	12 8 45.4	127.64	23	16 33 17.10	20 34 29.9	78.12
24	14 45 20.55	S. 12 21 31.2			16 35 38.52	S. 20 42 18.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 13.				FRIDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 35 38.52	S. 20 42 18.6	76.86	0	18 30 29.24	S. 24 18 32.8	10.56
1	16 38 0.08	20 49 59.8	75.59	1	18 32 53.25	24 19 36.2	9.14
2	16 40 21.77	20 57 33.4	74.32	2	18 35 17.19	24 20 31.0	7.71
3	16 42 43.59	21 4 59.3	73.03	3	18 37 41.07	24 21 17.3	6.29
4	16 45 5.55	21 12 17.4	71.74	4	18 40 4.87	24 21 55.1	4.87
5	16 47 27.63	21 19 27.9	70.44	5	18 42 28.60	24 22 24.3	3.46
6	16 49 49.84	21 26 30.5	69.14	6	18 44 52.24	24 22 45.1	2.04
7	16 52 12.17	21 33 25.4	67.83	7	18 47 15.80	24 22 57.3	0.63
8	16 54 34.62	21 40 12.3	66.51	8	18 49 39.26	24 23 1.1	0.78
9	16 56 57.19	21 46 51.4	65.19	9	18 52 2.62	24 22 56.4	2.18
10	16 59 19.87	21 53 22.5	63.86	10	18 54 25.88	24 22 43.3	3.59
11	17 1 42.67	21 59 45.6	62.52	11	18 56 49.03	24 22 21.8	4.99
12	17 4 5.57	22 6 0.8	61.18	12	18 59 12.06	24 21 51.9	6.38
13	17 6 28.58	22 12 7.8	59.83	13	19 1 34.98	24 21 13.6	7.77
14	17 8 51.69	22 18 6.8	58.48	14	19 3 57.77	24 20 27.0	9.16
15	17 11 14.89	22 23 57.6	57.12	15	19 6 20.44	24 19 32.0	10.55
16	17 13 38.20	22 29 40.3	55.75	16	19 8 42.97	24 18 28.7	11.93
17	17 16 1.59	22 35 14.9	54.39	17	19 11 5.36	24 17 17.2	13.30
18	17 18 25.07	22 40 41.2	53.01	18	19 13 27.61	24 15 57.4	14.67
19	17 20 48.64	22 45 59.3	51.64	19	19 15 49.71	24 14 29.3	16.04
20	17 23 12.28	22 51 9.1	50.25	20	19 18 11.66	24 12 53.1	17.40
21	17 25 36.00	22 56 10.6	48.87	21	19 20 33.45	24 11 8.7	18.75
22	17 27 59.80	23 1 3.8	47.48	22	19 22 55.08	24 9 16.2	20.10
23	17 30 23.66	S. 23 5 48.7	46.08	23	19 25 16.53	S. 24 7 15.6	21.45
THURSDAY 14.				SATURDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	17 32 47.59	S. 23 10 25.2	44.69	0	19 27 37.82	S. 24 5 6.9	22.79
1	17 35 11.58	23 14 53.3	43.29	1	19 29 58.93	24 2 50.2	24.12
2	17 37 35.62	23 19 13.0	41.88	2	19 32 19.85	24 0 25.4	25.45
3	17 39 59.72	23 23 24.3	40.47	3	19 34 40.60	23 57 52.7	26.77
4	17 42 23.86	23 27 27.1	39.06	4	19 37 1.15	23 55 12.1	28.08
5	17 44 48.04	23 31 21.5	37.65	5	19 39 21.50	23 52 23.6	29.39
6	17 47 12.26	23 35 7.4	36.24	6	19 41 41.66	23 49 27.3	30.69
7	17 49 36.52	23 38 44.8	34.82	7	19 44 1.62	23 46 23.1	31.98
8	17 52 0.80	23 42 13.7	33.40	8	19 46 21.37	23 43 11.2	33.27
9	17 54 25.11	23 45 34.1	31.98	9	19 48 40.91	23 39 51.5	34.55
10	17 56 49.44	23 48 46.0	30.55	10	19 51 0.24	23 36 24.2	35.83
11	17 59 13.78	23 51 49.3	29.13	11	19 53 19.35	23 32 49.2	37.09
12	18 1 38.13	23 54 44.1	27.70	12	19 55 38.24	23 29 6.7	38.35
13	18 4 2.49	23 57 30.3	26.27	13	19 57 56.90	23 25 16.6	39.60
14	18 6 26.84	24 0 7.9	24.85	14	20 0 15.34	23 21 19.0	40.84
15	18 8 51.19	24 2 37.0	23.42	15	20 2 33.54	23 17 13.9	42.08
16	18 11 15.53	24 4 57.5	21.99	16	20 4 51.51	23 13 1.5	43.30
17	18 13 39.86	24 7 9.4	20.56	17	20 7 9.23	23 8 41.6	44.52
18	18 16 4.16	24 9 12.8	19.13	18	20 9 26.72	23 4 14.5	45.73
19	18 18 28.43	24 11 7.6	17.70	19	20 11 43.96	22 59 40.1	46.93
20	18 20 52.68	24 12 53.8	16.27	20	20 14 0.95	22 54 58.5	48.13
21	18 23 16.89	24 14 31.4	14.84	21	20 16 17.69	22 50 9.8	49.31
22	18 25 41.05	24 16 0.4	13.41	22	20 18 34.18	22 45 13.9	50.49
23	18 28 5.17	24 17 20.9	11.99	23	20 20 50.41	22 40 11.0	51.66
24	18 30 29.24	S. 24 18 32.8		24	20 23 6.38	S. 22 35 1.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
SUNDAY 17.				TUESDAY 19.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	20 23 6.38	S. 22 35 1.1	52.81	0	22 6 19.41	S. 16 28 35.5	96.92
1	20 25 22.09	22 29 44.2	53.96	1	22 8 21.35	16 18 54.0	97.59
2	20 27 37.53	22 24 20.4	55.10	2	22 10 23.01	16 9 8.4	98.25
3	20 29 52.70	22 18 49.8	56.23	3	22 12 24.40	15 59 18.9	98.90
4	20 32 7.61	22 13 12.4	57.36	4	22 14 25.51	15 49 25.5	99.55
5	20 34 22.24	22 7 28.2	58.47	5	22 16 26.35	15 39 28.2	100.18
6	20 36 36.61	22 1 37.4	59.57	6	22 18 26.92	15 29 27.1	100.80
7	20 38 50.69	21 55 40.0	60.67	7	22 20 27.22	15 19 22.4	101.41
8	20 41 4.50	21 49 36.0	61.75	8	22 22 27.26	15 9 13.9	102.01
9	20 43 18.03	21 43 25.5	62.83	9	22 24 27.03	14 59 1.8	102.60
10	20 45 31.28	21 37 8.5	63.89	10	22 26 26.54	14 48 46.2	103.19
11	20 47 44.25	21 30 45.1	64.95	11	22 28 25.78	14 38 27.1	103.76
12	20 49 56.93	21 24 15.4	66.00	12	22 30 24.77	14 28 4.5	104.33
13	20 52 9.33	21 17 39.4	67.03	13	22 32 23.51	14 17 38.6	104.88
14	20 54 21.44	21 10 57.2	68.06	14	22 34 21.99	14 7 9.3	105.43
15	20 56 33.27	21 4 8.9	69.08	15	22 36 20.22	13 56 36.7	105.96
16	20 58 44.80	20 57 14.4	70.08	16	22 38 18.20	13 46 1.0	106.49
17	21 0 56.05	20 50 13.9	71.08	17	22 40 15.94	13 35 22.1	107.00
18	21 3 7.00	20 43 7.4	72.07	18	22 42 13.43	13 24 40.0	107.51
19	21 5 17.67	20 35 55.0	73.04	19	22 44 10.67	13 13 55.0	108.01
20	21 7 28.04	20 28 36.8	74.01	20	22 46 7.68	13 3 6.9	108.50
21	21 9 38.12	20 21 12.7	74.96	21	22 48 4.45	12 52 16.0	108.97
22	21 11 47.90	20 13 42.9	75.91	22	22 50 0.98	12 41 22.1	109.45
23	21 13 57.40	S. 20 6 7.5	76.85	23	22 51 57.28	S. 12 30 25.4	109.91
MONDAY 18.				WEDNESDAY 20.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>
0	21 16 6.59	S. 19 58 26.4	77.77	0	22 53 53.35	S. 12 19 26.0	110.36
1	21 18 15.49	19 50 39.8	78.68	1	22 55 49.19	12 8 23.9	110.80
2	21 20 24.10	19 42 47.7	79.59	2	22 57 44.80	11 57 19.1	111.23
3	21 22 32.41	19 34 50.2	80.48	3	22 59 40.20	11 46 11.7	111.66
4	21 24 40.42	19 26 47.3	81.37	4	23 1 35.37	11 35 1.7	112.07
5	21 26 48.14	19 18 39.1	82.24	5	23 3 30.32	11 23 49.3	112.48
6	21 28 55.56	19 10 25.7	83.11	6	23 5 25.06	11 12 34.4	112.88
7	21 31 2.69	19 2 7.0	83.96	7	23 7 19.59	11 1 17.2	113.27
8	21 33 9.53	18 53 43.3	84.80	8	23 9 13.91	10 49 57.6	113.65
9	21 35 16.07	18 45 14.4	85.64	9	23 11 8.03	10 38 35.7	114.02
10	21 37 22.32	18 36 40.6	86.46	10	23 13 1.94	10 27 11.5	114.39
11	21 39 28.28	18 28 1.8	87.28	11	23 14 55.65	10 15 45.2	114.74
12	21 41 33.94	18 19 18.2	88.08	12	23 16 49.17	10 4 16.8	115.09
13	21 43 39.31	18 10 29.7	88.88	13	23 18 42.49	9 52 46.2	115.43
14	21 45 44.40	18 1 36.4	89.66	14	23 20 35.62	9 41 13.7	115.76
15	21 47 49.19	17 52 38.4	90.43	15	23 22 28.57	9 29 39.1	116.08
16	21 49 53.69	17 43 35.8	91.20	16	23 24 21.33	9 18 2.7	116.39
17	21 51 57.91	17 34 28.7	91.95	17	23 26 13.91	9 6 24.3	116.70
18	21 54 1.83	17 25 17.0	92.69	18	23 28 6.31	8 54 44.1	116.99
19	21 56 5.47	17 16 0.8	93.42	19	23 29 58.53	8 43 2.2	117.28
20	21 58 8.83	17 6 40.3	94.14	20	23 31 50.58	8 31 18.5	117.56
21	22 0 11.90	16 57 15.4	94.85	21	23 33 42.47	8 19 33.1	117.84
22	22 2 14.68	16 47 46.3	95.56	22	23 35 34.18	8 7 46.1	118.10
23	22 4 17.18	16 38 13.0	96.25	23	23 37 25.74	7 55 57.5	118.36
24	22 6 19.41	S. 16 28 35.5		24	23 39 17.14	S. 7 44 7.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>THURSDAY 21.</i>				<i>SAURDAY 23.</i>		
^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
23 39 17.14	S. 7 44 7.3	118.61	0	1 6 22.92	N. 1 59 40.0	122.04
23 41 8.38	7 32 15.7	118.85	1	1 8 10.70	2 11 52.3	121.95
23 42 59.47	7 20 22.6	119.08	2	1 9 58.49	2 24 4.0	121.85
23 44 50.40	7 8 28.1	119.31	3	1 11 46.31	2 36 15.1	121.74
23 46 41.19	6 56 32.2	119.53	4	1 13 34.14	2 48 25.5	121.63
23 48 31.84	6 44 35.1	119.74	5	1 15 22.00	3 0 35.3	121.51
23 50 22.34	6 32 36.7	119.94	6	1 17 9.90	3 12 44.4	121.39
23 52 12.71	6 20 37.0	120.13	7	1 18 57.82	3 24 52.7	121.26
23 54 2.95	6 8 36.2	120.32	8	1 20 45.78	3 37 0.3	121.12
23 55 53.06	5 56 34.3	120.50	9	1 22 33.79	3 49 7.0	120.97
23 57 43.04	5 44 31.3	120.67	10	1 24 21.84	4 1 12.8	120.82
23 59 32.90	5 32 27.3	120.84	11	1 26 9.93	4 13 17.7	120.66
0 1 22.64	5 20 22.2	121.00	12	1 27 58.08	4 25 21.7	120.50
0 3 12.26	5 8 16.2	121.15	13	1 29 46.28	4 37 24.7	120.33
0 5 1.77	4 56 9.4	121.29	14	1 31 34.55	4 49 26.6	120.15
0 6 51.17	4 44 1.6	121.42	15	1 33 22.87	5 1 27.5	119.97
0 8 40.47	4 31 53.1	121.55	16	1 35 11.27	5 13 27.3	119.78
0 10 29.66	4 19 43.8	121.67	17	1 36 59.73	5 25 26.0	119.58
0 12 18.75	4 7 33.7	121.79	18	1 38 48.26	5 37 23.5	119.38
0 14 7.75	3 55 23.0	121.90	19	1 40 36.88	5 49 19.7	119.17
0 15 56.65	3 43 11.6	122.00	20	1 42 25.57	6 1 14.7	118.95
0 17 45.47	3 30 59.7	122.09	21	1 44 14.35	6 13 8.4	118.73
0 19 34.20	3 18 47.1	122.17	22	1 46 3.22	6 25 0.8	118.50
0 21 22.85	S. 3 6 34.1	122.25	23	1 47 52.18	N. 6 36 51.8	118.26
<i>FRIDAY 22.</i>				<i>SUNDAY 24.</i>		
^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0 23 11.42	S. 2 54 20.6	122.33	0	1 49 41.24	N. 6 48 41.4	118.02
0 24 59.92	2 42 6.6	122.39	1	1 51 30.40	7 0 29.5	117.77
0 26 48.34	2 29 52.3	122.45	2	1 53 19.66	7 12 16.2	117.52
0 28 36.70	2 17 37.6	122.50	3	1 55 9.03	7 24 1.3	117.26
0 30 25.00	2 5 22.6	122.54	4	1 56 58.50	7 35 44.8	116.99
0 32 13.23	1 53 7.3	122.58	5	1 58 48.10	7 47 26.7	116.71
0 34 1.41	1 40 51.8	122.61	6	2 0 37.81	7 59 7.0	116.43
0 35 49.53	1 28 36.1	122.64	7	2 2 27.64	8 10 45.6	116.14
0 37 37.61	1 16 20.3	122.65	8	2 4 17.59	8 22 22.5	115.85
0 39 25.63	1 4 4.4	122.66	9	2 6 7.67	8 33 57.6	115.55
0 41 13.62	0 51 48.4	122.67	10	2 7 57.89	8 45 30.8	115.24
0 43 1.56	0 39 32.4	122.67	11	2 9 48.24	8 57 2.3	114.92
0 44 49.47	0 27 16.4	122.66	12	2 11 38.73	9 8 31.8	114.60
0 46 37.35	0 15 0.5	122.64	13	2 13 29.36	9 19 59.4	114.27
0 48 25.20	S. 0 2 44.6	122.62	14	2 15 20.13	9 31 25.0	113.94
0 50 13.02	N. 0 9 31.1	122.59	15	2 17 11.06	9 42 48.7	113.60
0 52 0.82	0 21 46.6	122.55	16	2 19 2.14	9 54 10.2	113.25
0 53 48.61	0 34 1.9	122.51	17	2 20 53.37	10 5 29.7	112.89
0 55 36.38	0 46 17.0	122.46	18	2 22 44.77	10 16 47.1	112.53
0 57 24.14	0 58 31.8	122.41	19	2 24 36.33	10 28 2.2	112.16
0 59 11.90	1 10 46.2	122.35	20	2 26 28.06	10 39 15.2	111.78
1 0 59.65	1 23 0.3	122.28	21	2 28 19.96	10 50 25.8	111.40
1 2 47.40	1 35 14.0	122.21	22	2 30 12.03	11 1 34.2	111.00
1 4 35.16	1 47 27.3	122.13	23	2 32 4.28	11 12 40.2	110.61
1 6 22.92	N. 1 59 40.0		24	2 33 56.72	N. 11 23 43.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
<i>MONDAY 25.</i>				<i>WEDNESDAY 27.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	2 33 56.72	N. 11 23 43.9	110.20	0	4 8 30.20	N. 19 12 39.0	81.35
1	2 35 49.34	11 34 45.1	109.79	1	4 10 35.32	19 20 47.1	80.53
2	2 37 42.15	11 45 43.8	109.37	2	4 12 40.76	19 28 50.3	79.70
3	2 39 35.16	11 56 40.0	108.94	3	4 14 46.52	19 36 48.5	78.86
4	2 41 28.35	12 7 33.6	108.51	4	4 16 52.60	19 44 41.6	78.01
5	2 43 21.75	12 18 24.7	108.06	5	4 18 59.01	19 52 29.7	77.16
6	2 45 15.35	12 29 13.0	107.62	6	4 21 5.75	20 0 12.6	76.29
7	2 47 9.16	12 39 58.7	107.16	7	4 23 12.81	20 7 50.4	75.41
8	2 49 3.17	12 50 41.7	106.69	8	4 25 20.21	20 15 22.8	74.53
9	2 50 57.40	13 1 21.9	106.22	9	4 27 27.93	20 22 50.0	73.63
10	2 52 51.84	13 11 59.2	105.74	10	4 29 35.99	20 30 11.8	72.72
11	2 54 46.50	13 22 33.6	105.26	11	4 31 44.37	20 37 28.1	71.80
12	2 56 41.38	13 33 5.2	104.76	12	4 33 53.09	20 44 38.9	70.88
13	2 58 36.49	13 43 33.8	104.26	13	4 36 2.14	20 51 44.2	69.94
14	3 0 31.82	13 53 59.3	103.75	14	4 38 11.54	20 58 43.8	68.99
15	3 2 27.39	14 4 21.8	103.23	15	4 40 21.26	21 5 37.8	68.04
16	3 4 23.19	14 14 41.2	102.71	16	4 42 31.32	21 12 26.0	67.07
17	3 6 19.23	14 24 57.5	102.17	17	4 44 41.72	21 19 8.4	66.09
18	3 8 15.51	14 35 10.5	101.63	18	4 46 52.46	21 25 44.9	65.10
19	3 10 12.03	14 45 20.3	101.08	19	4 49 3.53	21 32 15.5	64.10
20	3 12 8.81	14 55 26.8	100.52	20	4 51 14.94	21 38 40.1	63.09
21	3 14 5.83	15 5 29.9	99.95	21	4 53 26.68	21 44 58.7	62.07
22	3 16 3.11	15 15 29.6	99.38	22	4 55 38.77	21 51 11.1	61.04
23	3 18 0.64	N. 15 25 25.9	98.80	23	4 57 51.19	N. 21 57 17.3	60.00
<i>TUESDAY 26.</i>				<i>THURSDAY 28.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	3 19 58.43	N. 15 35 18.7	98.20	0	5 0 3.95	N. 22 3 17.3	58.94
1	3 21 56.48	15 45 7.9	97.60	1	5 2 17.05	22 9 10.9	57.88
2	3 23 54.80	15 54 53.5	96.99	2	5 4 30.49	22 14 58.2	56.81
3	3 25 53.39	16 4 35.4	96.38	3	5 6 44.26	22 20 39.1	55.73
4	3 27 52.25	16 14 13.7	95.75	4	5 8 58.37	22 26 13.4	54.63
5	3 29 51.38	16 23 48.2	95.12	5	5 11 12.81	22 31 41.2	53.53
6	3 31 50.79	16 33 18.9	94.47	6	5 13 27.59	22 37 2.4	52.42
7	3 33 50.47	16 42 45.7	93.82	7	5 15 42.71	22 42 16.9	51.29
8	3 35 50.44	16 52 8.6	93.16	8	5 17 58.15	22 47 24.6	50.16
9	3 37 50.69	17 1 27.6	92.49	9	5 20 13.92	22 52 25.6	49.01
10	3 39 51.23	17 10 42.5	91.81	10	5 22 30.03	22 57 19.7	47.86
11	3 41 52.06	17 19 53.4	91.12	11	5 24 46.46	23 2 6.8	46.70
12	3 43 53.18	17 29 0.1	90.43	12	5 27 3.22	23 6 47.0	45.52
13	3 45 54.59	17 38 2.6	89.72	13	5 29 20.31	23 11 20.1	44.34
14	3 47 56.30	17 47 1.0	89.00	14	5 31 37.72	23 15 46.2	43.14
15	3 49 58.31	17 55 55.0	88.28	15	5 33 55.46	23 20 5.0	41.94
16	3 52 0.62	18 4 44.7	87.55	16	5 36 13.51	23 24 16.7	40.72
17	3 54 3.24	18 13 29.9	86.80	17	5 38 31.89	23 28 21.0	39.50
18	3 56 6.16	18 22 10.8	86.05	18	5 40 50.58	23 32 18.0	38.26
19	3 58 9.38	18 30 47.1	85.29	19	5 43 9.59	23 36 7.5	37.02
20	4 0 12.92	18 39 18.8	84.52	20	5 45 28.90	23 39 49.6	35.76
21	4 2 16.76	18 47 46.0	83.74	21	5 47 48.53	23 43 24.2	34.50
22	4 4 20.93	18 56 8.4	82.95	22	5 50 8.47	23 46 51.2	33.22
23	4 6 25.40	19 4 26.1	82.15	23	5 52 28.71	23 50 10.5	31.94
24	4 8 30.20	N. 19 12 39.0		24	5 54 49.25	N. 23 53 22.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 29.				SUNDAY 31.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	5 54 49.25	N. 23 53 22.1	30.64	0	7 51 50.15	N. 23 40 12.8	39.75
1	5 57 10.09	23 56 26.0	29.34	1	7 54 20.07	23 36 14.3	41.31
2	5 59 31.23	23 59 22.0	28.03	2	7 56 50.03	23 32 6.4	42.87
3	6 1 52.66	24 2 10.2	26.71	3	7 59 20.05	23 27 49.2	44.43
4	6 4 14.38	24 4 50.4	25.38	4	8 1 50.11	23 23 22.6	45.99
5	6 6 36.38	24 7 22.7	24.04	5	8 4 20.20	23 18 46.7	47.54
6	6 8 58.67	24 9 46.9	22.69	6	8 6 50.31	23 14 1.4	49.10
7	6 11 21.23	24 12 3.0	21.33	7	8 9 20.46	23 9 6.9	50.65
8	6 13 44.07	24 14 11.1	19.97	8	8 11 50.62	23 4 3.0	52.20
9	6 16 7.19	24 16 10.9	18.60	9	8 14 20.79	22 58 49.8	53.75
10	6 18 30.57	24 18 2.5	17.22	10	8 16 50.96	22 53 27.3	55.29
11	6 20 54.21	24 19 45.7	15.83	11	8 19 21.14	22 47 55.6	56.83
12	6 23 18.11	24 21 20.7	14.44	12	8 21 51.31	22 42 14.6	58.37
13	6 25 42.27	24 22 47.3	13.03	13	8 24 21.46	22 36 24.3	59.91
14	6 28 6.68	24 24 5.5	11.62	14	8 26 51.60	22 30 24.9	61.44
15	6 30 31.34	24 25 15.2	10.19	15	8 29 21.72	22 24 16.2	62.97
16	6 32 56.24	24 26 16.4	8.77	16	8 31 51.80	22 17 58.4	64.49
17	6 35 21.37	24 27 8.9	7.33	17	8 34 21.86	22 11 31.5	66.01
18	6 37 46.74	24 27 52.9	5.89	18	8 36 51.87	22 4 55.4	67.52
19	6 40 12.34	24 28 28.2	4.44	19	8 39 21.84	21 58 10.3	69.03
20	6 42 38.16	24 28 54.9	2.98	20	8 41 51.76	21 51 16.1	70.54
21	6 45 4.20	24 29 12.7	1.51	21	8 44 21.63	21 44 12.9	72.03
22	6 47 30.46	24 29 21.8	0.04	22	8 46 51.44	21 37 0.7	73.52
23	6 49 56.92	N. 24 29 22.1	1.43	23	8 49 21.18	N. 21 29 39.5	75.01
SATURDAY 30.				MONDAY, SEPT. 1.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	6 52 23.59	N. 24 29 13.5	2.92	0	8 51 50.86	N. 21 22 9.5	
1	6 54 50.46	24 28 55.9	4.41				
2	6 57 17.52	24 28 29.4	5.91				
3	6 59 44.77	24 27 54.0	7.41				
4	7 2 12.19	24 27 9.5	8.91				
5	7 4 39.80	24 26 16.0	10.42				
6	7 7 7.58	24 25 13.5	11.94				
7	7 9 35.52	24 24 1.9	13.46				
8	7 12 3.62	24 22 41.1	14.98				
9	7 14 31.87	24 21 11.2	16.51				
10	7 17 0.28	24 19 32.1	18.04				
11	7 19 28.82	24 17 43.9	19.58				
12	7 21 57.50	24 15 46.4	21.11				
13	7 24 26.31	24 13 39.8	22.65				
14	7 26 55.25	24 11 23.8	24.20				
15	7 29 24.30	24 8 58.6	25.75				
16	7 31 53.47	24 6 24.2	27.30				
17	7 34 22.74	24 3 40.4	28.85				
18	7 36 52.12	24 0 47.3	30.40				
19	7 39 21.58	23 57 44.9	31.96				
20	7 41 51.14	23 54 33.2	33.51				
21	7 44 20.78	23 51 12.1	35.07				
22	7 46 50.50	23 47 41.7	36.63				
23	7 49 20.29	23 44 1.9	38.19				
24	7 51 50.15	N. 23 40 12.8					

PHASES OF THE MOON.

- New Moon..... ^d ^h ^m 4 18 35.4
 ☾ First Quarter... 11 10 13.3
 ○ Full Moon..... 18 20 11.0
 ☾ Last Quarter... 26 23 46.2

- ☾ Perigee..... ^d ^h 7 10
 ☾ Apogee..... 23 5

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	α Arietis W.	46 25 34	2920	47 57 27	2892	49 29 56	2865	51 3 0	2838
	Mars W.	19 53 20	2912	21 25 24	2893	22 57 52	2875	24 30 43	2857
	Jupiter W.	- - -	-	- - -	-	17 42 22	2701	19 19 1	2683
	SUN E.	47 52 9	3023	46 22 25	3006	44 52 19	2989	43 21 53	2973
2	α Arietis W.	58 56 35	2718	60 32 51	2696	62 9 37	2675	63 46 51	2653
	Mars W.	32 20 48	2767	33 55 59	2750	35 31 33	2732	37 7 30	2714
	Jupiter W.	27 28 7	2598	29 7 5	2580	30 46 27	2563	32 26 13	2547
	SUN E.	35 44 35	2893	34 12 7	2877	32 39 19	2862	31 6 12	2848
3	Mars W.	45 12 58	2631	46 51 11	2615	48 29 45	2599	50 8 41	2585
	Jupiter W.	40 50 38	2467	42 32 38	2452	44 14 59	2437	45 57 41	2422
6	SUN W.	- - -	-	- - -	-	- - -	-	- - -	-
	Venus E.	21 41 27	2626	20 3 7	2638	18 25 4	2656	16 47 25	2683
	Saturn E.	36 49 38	2202	35 1 14	2200	33 12 46	2196	31 24 13	2196
7	SUN W.	30 40 27	2470	32 22 22	2466	34 4 23	2464	35 46 27	2462
	Saturn E.	22 21 29	2204	20 33 8	2210	18 44 56	2217	- - -	-
	Antares E.	83 10 13	2167	81 20 55	2167	79 31 37	2167	77 42 19	2168
8	SUN W.	44 16 55	2467	45 58 54	2470	47 40 50	2473	49 22 41	2477
	Antares E.	68 36 35	2182	66 47 40	2186	64 58 51	2191	63 10 10	2196
	α Aquilæ E.	113 0 14	3020	111 30 26	3002	110 0 15	2987	108 29 46	2973
9	SUN W.	57 50 20	2503	59 31 29	2510	61 12 29	2517	62 53 19	2524
	Venus W.	19 31 8	2663	21 8 37	2655	22 46 17	2651	24 24 3	2649
	Antares E.	54 8 59	2230	52 21 16	2239	50 33 46	2248	48 46 30	2257
	α Aquilæ E.	100 54 4	2939	99 22 34	2938	97 51 3	2938	96 19 32	2940
10	SUN W.	71 14 52	2564	72 54 36	2573	74 34 8	2582	76 13 28	2591
	Venus W.	32 32 44	2663	34 10 14	2669	35 47 36	2675	37 24 49	2682
	Saturn W.	21 18 49	2313	23 4 30	2317	24 50 5	2322	26 35 33	2327
	Antares E.	39 53 50	2313	38 8 10	2326	36 22 49	2341	34 37 49	2357
	α Aquilæ E.	88 43 12	2971	87 12 23	2982	85 41 48	2993	84 11 27	3007
11	SUN W.	84 26 55	2639	86 4 57	2649	87 42 45	2660	89 20 19	2669
	Venus W.	45 28 26	2723	47 4 36	2732	48 40 34	2740	50 16 21	2749
	Saturn W.	35 20 32	2364	37 4 59	2373	38 49 13	2380	40 33 16	2389
	α Aquilæ E.	76 44 26	3095	75 16 10	3116	73 48 20	3140	72 20 59	3166
	Fomalhaut E.	108 47 51	2521	107 7 7	2528	105 26 32	2533	103 46 4	2540
12	SUN W.	97 24 44	2722	99 0 54	2732	100 36 51	2743	102 12 34	2753
	Venus W.	58 12 6	2798	59 46 37	2808	61 20 54	2818	62 54 58	2828
	Saturn W.	49 10 17	2435	50 53 2	2445	52 35 33	2453	54 17 52	2463
	Spica π W.	35 24 9	2482	37 5 48	2484	38 47 24	2489	40 28 53	2493
	Fomalhaut E.	95 26 17	2578	93 46 52	2588	92 7 40	2596	90 28 40	2607
	α Pegasi E.	112 8 49	2878	110 36 2	2876	109 3 12	2876	107 30 23	2877
13	SUN W.	110 7 39	2807	111 41 58	2817	113 16 4	2828	114 49 55	2838
	Venus W.	70 42 3	2880	72 14 48	2889	73 47 21	2900	75 19 40	2909
	Saturn W.	62 46 4	2511	64 27 2	2520	66 7 47	2530	67 48 19	2539
	Spica π W.	48 54 27	2524	50 35 7	2532	52 15 36	2538	53 55 56	2546
	Fomalhaut E.	82 17 7	2659	80 39 32	2670	79 2 12	2682	77 25 8	2694
	α Pegasi E.	99 46 59	2895	98 14 34	2902	96 42 17	2908	95 10 8	2916

MEAN TIME.

LUNAR DISTANCES.

1/10/13 of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			° ' "		° ' "		° ' "		° ' "	
1	α Arietis	W.	52 36 38	2812	54 10 50	2788	55 45 34	2764	57 20 49	2741
	Mars	W.	26 3 57	2838	27 37 35	2821	29 11 36	2803	30 46 0	2785
	Jupiter	W.	20 56 4	2666	22 33 30	2648	24 11 20	2632	25 49 32	2615
	SUN	E.	41 51 6	2957	40 19 59	2940	38 48 31	2924	37 16 43	2909
2	α Arietis	W.	65 24 34	2634	67 2 43	2613	68 41 20	2594	70 20 23	2576
	Mars	W.	38 43 51	2698	40 20 34	2681	41 57 39	2663	43 35 8	2648
	Jupiter	W.	34 6 21	2530	35 46 52	2514	37 27 45	2499	39 9 0	2482
	SUN	E.	29 32 47	2835	27 59 5	2823	26 25 7	2811	24 50 53	2800
3	Mars	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Jupiter	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
6	SUN	W.	23 54 1	2495	25 35 22	2486	27 16 55	2479	28 58 37	2474
	Venus	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Saturn	E.	29 35 39	2195	27 47 4	2195	25 58 29	2197	24 9 57	2200
7	SUN	W.	37 28 34	2462	39 10 41	2462	40 52 47	2463	42 34 52	2465
	Saturn	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Antares	E.	75 53 4	2170	74 3 51	2172	72 14 41	2175	70 25 35	2179
8	SUN	W.	51 4 26	2482	52 46 5	2486	54 27 38	2492	56 9 3	2497
	Antares	E.	61 21 37	2202	59 33 12	2208	57 44 57	2216	55 56 53	2223
	α Aquilæ	E.	106 58 59	2962	105 27 59	2954	103 56 49	2946	102 25 29	2942
9	SUN	W.	64 33 59	2531	66 14 29	2539	67 54 48	2548	69 34 55	2555
	Venus	W.	26 1 51	2649	27 39 39	2651	29 17 25	2654	30 55 7	2658
	Antares	E.	46 59 27	2266	45 12 38	2278	43 26 6	2288	41 39 49	2300
	α Aquilæ	E.	94 48 4	2943	93 16 40	2948	91 45 22	2954	90 14 12	2962
10	SUN	W.	77 52 36	2601	79 31 30	2610	81 10 12	2620	82 48 40	2629
	Venus	W.	39 1 53	2690	40 38 47	2697	42 15 31	2705	43 52 4	2714
	Saturn	W.	28 20 53	2333	30 6 4	2341	31 51 4	2348	33 35 54	2356
	Antares	E.	32 53 12	2375	31 9 1	2392	29 25 15	2412	27 41 57	2434
	α Aquilæ	E.	82 41 23	3022	81 11 38	3038	79 42 12	3055	78 13 7	3074
11	SUN	W.	90 57 40	2680	92 34 47	2690	94 11 40	2701	95 48 19	2711
	Venus	W.	51 51 56	2760	53 27 17	2769	55 2 26	2779	56 37 22	2788
	Saturn	W.	42 17 6	2398	44 0 43	2407	45 44 8	2417	47 27 19	2426
	α Aquilæ	E.	70 54 9	3193	69 27 51	3221	68 2 7	3252	66 36 59	3285
	Fomalhaut	E.	102 5 46	2547	100 25 38	2554	98 45 40	2561	97 5 52	2571
12	SUN	W.	103 48 3	2764	105 23 18	2775	106 58 19	2785	108 33 6	2796
	Venus	W.	64 28 49	2838	66 2 27	2849	67 35 52	2859	69 9 4	2869
	Saturn	W.	55 59 57	2472	57 41 49	2482	59 23 27	2492	61 4 52	2501
	Spica π	W.	42 10 16	2499	43 51 31	2504	45 32 39	2511	47 13 37	2517
	Fomalhaut	E.	88 49 54	2616	87 11 21	2626	85 33 2	2637	83 54 57	2648
	α Pegasi	E.	105 57 35	2879	104 24 49	2882	102 52 7	2886	101 19 30	2891
13	SUN	W.	116 23 33	2850	117 56 56	2860	119 30 6	2870	121 3 3	2881
	Venus	W.	76 51 47	2920	78 23 41	2930	79 55 22	2941	81 26 49	2950
	Saturn	W.	69 28 38	2548	71 8 44	2558	72 48 37	2567	74 28 17	2577
	Spica π	W.	55 36 5	2553	57 16 4	2562	58 55 51	2569	60 35 28	2578
	Fomalhaut	E.	75 48 20	2706	74 11 48	2719	72 35 34	2732	70 59 36	2746
	α Pegasi	E.	93 38 9	2923	92 6 19	2931	90 34 40	2941	89 3 13	2950

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	
		° ' "		° ' "		° ' "		° ' "	
14	Venus W.	82 58 4	2961	84 29 6	2970	85 59 56	2981	87 30 33	
	Saturn W.	76 7 44	2586	77 46 58	2595	79 26 0	2604	81 4 49	
	Spica π W.	62 14 53	2585	63 54 8	2594	65 33 11	2602	67 12 3	
	Fomalhaut E.	69 23 57	2760	67 48 36	2773	66 13 33	2789	64 38 51	
	α Pegasi E.	87 31 58	2961	86 0 56	2972	84 30 8	2983	82 59 34	
15	Venus W.	95 0 30	3040	96 29 53	3051	97 59 3	3061	99 28 0	
	Saturn W.	89 15 44	2660	90 53 18	2669	92 30 40	2678	94 7 43	
	Spica π W.	75 23 30	2654	77 1 12	2662	78 38 43	2670	80 16 3	
	Antares W.	29 39 46	2720	31 15 59	2720	32 52 13	2722	34 28 24	
	Fomalhaut E.	56 50 32	2891	55 18 2	2911	53 45 57	2931	52 14 18	
	α Pegasi E.	75 30 46	3066	74 1 55	3083	72 33 24	3099	71 5 13	
16	Venus W.	106 49 45	3120	108 17 30	3130	109 45 3	3140	111 12 24	
	Saturn W.	102 10 36	2732	103 46 33	2741	105 22 19	2750	106 57 53	
	Spica π W.	88 19 47	2723	89 55 57	2732	91 31 55	2740	93 7 42	
	Antares W.	42 28 12	2747	44 3 50	2752	45 39 21	2758	47 14 44	
	Fomalhaut E.	44 43 38	3088	43 15 14	3122	41 47 31	3157	40 20 30	
	α Arietis E.	105 33 2	2831	103 59 14	2837	102 25 34	2845	100 52 4	
17	Spica π W.	101 3 41	2793	102 38 18	2803	104 12 43	2811	105 46 56	
	Antares W.	55 9 29	2799	56 43 58	2806	58 18 18	2814	59 52 28	
	α Arietis E.	93 6 59	2891	91 34 29	2899	90 2 9	2909	88 30 1	
	Jupiter E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
18	Antares W.	67 40 51	2859	69 14 2	2867	70 47 3	2876	72 19 53	
	α Arietis E.	80 52 6	2963	79 21 7	2973	77 50 20	2982	76 19 45	
	Aldebaran E.	111 34 27	2843	110 0 55	2852	108 27 34	2859	106 54 23	
	Jupiter E.	113 20 4	2877	111 47 15	2884	110 14 36	2893	108 42 8	
	Mars E.	116 29 27	3056	115 0 23	3065	113 31 30	3073	112 2 47	
19	Antares W.	80 1 37	2922	81 33 28	2930	83 5 9	2938	84 36 40	
	α Arietis E.	68 50 2	3045	67 20 45	3057	65 51 43	3069	64 22 55	
	Aldebaran E.	99 11 4	2909	97 38 56	2916	96 6 57	2924	94 35 8	
	Jupiter E.	101 2 22	2942	99 30 56	2950	97 59 40	2958	96 28 34	
	Mars E.	104 41 49	3124	103 14 8	3132	101 46 37	3141	100 19 17	
20	Antares W.	92 11 53	2982	93 42 28	2989	95 12 54	2998	96 43 10	
	α Arietis E.	57 2 35	3144	55 35 19	3158	54 8 19	3172	52 41 37	
	Aldebaran E.	86 58 28	2970	85 27 37	2976	83 56 54	2983	82 26 20	
	Jupiter E.	88 55 25	3002	87 25 15	3010	85 55 14	3017	84 25 22	
	Mars E.	93 4 56	3187	91 38 31	3195	90 12 16	3202	88 46 9	
21	Antares W.	104 12 27	3037	105 41 54	3043	107 11 13	3049	108 40 25	
	α Aquilæ W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	
	Aldebaran E.	74 55 38	3022	73 25 53	3029	71 56 16	3035	70 26 46	
	Jupiter E.	76 58 3	3055	75 28 58	3061	74 0 0	3066	72 31 9	
	Mars E.	81 37 37	3242	80 12 18	3248	78 47 6	3253	77 22 0	
22	α Aquilæ W.	70 49 16	3872	72 3 4	3862	73 17 2	3854	74 31 9	
	Fomalhaut W.	35 31 27	3620	36 49 40	3586	38 8 30	3555	39 27 53	
	Aldebaran E.	63 0 56	3065	61 32 3	3069	60 3 16	3074	58 34 34	
	Jupiter E.	65 8 27	3095	63 40 11	3098	62 11 59	3102	60 43 52	
	Mars E.	70 18 6	3283	68 53 35	3288	67 29 9	3291	66 4 47	

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
14	Venus W.	89 0 57	3001	90 31 9	3011	92 1 8	3021	93 30 55	3031
	Saturn W.	82 43 25	2624	84 21 48	2632	85 59 59	2641	87 37 58	2651
	Spica π W.	68 50 43	2619	70 29 12	2628	72 7 29	2636	73 45 35	2644
	Fomalhaut E.	63 4 28	2820	61 30 26	2836	59 56 45	2854	58 23 27	2872
	α Pegasi E.	81 29 15	3008	79 59 12	3022	78 29 26	3035	76 59 57	3050
15	Venus W.	100 56 45	3081	102 25 18	3091	103 53 39	3101	105 21 48	3110
	Saturn W.	95 44 47	2696	97 21 32	2705	98 58 5	2714	100 34 27	2723
	Spica π W.	81 53 11	2688	83 30 7	2696	85 6 52	2705	86 43 25	2714
	Antares W.	36 4 31	2727	37 40 35	2731	39 16 34	2736	40 52 26	2741
	Fomalhaut E.	50 43 8	2978	49 12 27	3002	47 42 17	3029	46 12 40	3057
	α Pegasi E.	69 37 24	3136	68 9 58	3156	66 42 56	3177	65 16 19	3199
16	Venus W.	112 39 33	3160	114 6 30	3170	115 33 15	3179	116 59 49	3189
	Saturn W.	108 33 15	2768	110 8 25	2776	111 43 24	2785	113 18 11	2795
	Spica π W.	94 43 17	2757	96 18 41	2766	97 53 53	2776	99 28 53	2785
	Antares W.	48 49 59	2771	50 25 5	2778	52 0 2	2785	53 34 50	2792
	Fomalhaut E.	38 54 17	3240	37 28 55	3288	36 4 29	3339	34 41 3	3399
	α Arietis E.	99 18 44	2959	97 45 32	2967	96 12 31	2975	94 39 40	2983
17	Spica π W.	107 20 58	2829	108 54 48	2838	110 28 26	2848	112 1 52	2857
	Antares W.	61 26 29	2829	63 0 19	2836	64 34 0	2844	66 7 31	2852
	α Arietis E.	86 58 3	2925	85 26 16	2935	83 54 41	2944	82 23 18	2953
	Jupiter E.	119 33 12	2842	117 59 39	2851	116 26 17	2859	114 53 5	2867
18	Antares W.	73 52 34	2891	75 25 4	2898	76 57 25	2906	78 29 36	2914
	α Arietis E.	74 49 22	3003	73 19 13	3013	71 49 16	3023	70 19 32	3034
	Aldebaran E.	105 21 23	2876	103 48 33	2884	102 15 53	2892	100 43 24	2899
	Jupiter E.	107 9 50	2909	105 37 42	2917	104 5 45	2926	102 33 59	2933
	Mars E.	110 34 14	3091	109 5 53	3098	107 37 41	3107	106 9 40	3115
19	Antares W.	86 8 1	2953	87 39 13	2960	89 10 16	2968	90 41 9	2975
	α Arietis E.	62 54 21	3092	61 26 1	3105	59 57 57	3117	58 30 8	3130
	Aldebaran E.	93 3 29	2939	91 32 0	2946	90 0 40	2954	88 29 29	2962
	Jupiter E.	94 57 37	2973	93 26 50	2980	91 56 12	2988	90 25 44	2995
	Mars E.	98 52 6	3156	97 25 4	3164	95 58 12	3173	94 31 30	3179
20	Antares W.	98 13 18	3010	99 43 18	3017	101 13 9	3024	102 42 52	3031
	α Arietis E.	51 15 12	3203	49 49 7	3219	48 23 20	3236	46 57 54	3254
	Aldebaran E.	80 55 55	2997	79 25 38	3004	77 55 30	3010	76 25 30	3017
	Jupiter E.	82 55 38	3030	81 26 2	3037	79 56 35	3043	78 27 16	3048
	Mars E.	87 20 11	3215	85 54 20	3223	84 28 38	3230	83 3 4	3236
21	Antares W.	110 9 30	3061	111 38 28	3066	113 7 19	3072	114 36 3	3077
	α Aquilæ W.	65 56 5	3923	67 9 2	3907	68 22 14	3895	69 35 39	3883
	Aldebaran E.	68 57 23	3046	67 28 7	3051	65 58 57	3056	64 29 53	3061
	Jupiter E.	71 2 25	3077	69 33 47	3082	68 5 15	3086	66 36 48	3091
	Mars E.	75 57 1	3265	74 32 9	3270	73 7 22	3275	71 42 41	3280
22	α Aquilæ W.	75 45 24	3838	76 59 47	3832	78 14 16	3827	79 28 50	3822
	Fomalhaut W.	40 47 46	3504	42 8 6	3482	43 28 50	3463	44 49 55	3445
	Aldebaran E.	57 5 57	3081	55 37 24	3085	54 8 56	3087	52 40 31	3090
	Jupiter E.	59 15 50	3109	57 47 51	3111	56 19 55	3113	54 52 1	3115
	Mars E.	64 40 30	3298	63 16 16	3301	61 52 5	3303	60 27 57	3306

MEAN TIME.																
LUNAR DISTANCES.																
Days of the Month.	Star's Name and Position.	Noon.			P.L. of diff.	III ^h .			P.L. of diff.	VI ^h .			P.L. of diff.	IX ^h .		
		°	'	"		°	'	"		°	'	"		°	'	"
23	α Aquilæ W.	80	43	30	3817	81	58	15	3813	83	13	4	3810	84	27	
	Fomalhaut W.	46	11	21	3429	47	33	5	3413	48	55	7	3400	50	17	
	Aldebaran E.	51	12	9	3092	49	43	50	3095	48	15	34	3096	46	47	
	Jupiter E.	53	24	10	3117	51	56	21	3119	50	28	34	3119	49	0	
	Mars E.	59	3	52	3307	57	39	48	3308	56	15	46	3309	54	51	
	Pollux E.	95	21	46	3087	93	53	21	3088	92	24	57	3090	90	56	
24	α Aquilæ W.	90	42	53	3799	91	57	56	3798	93	13	0	3799	94	28	
	Fomalhaut W.	57	12	13	3332	58	35	47	3323	59	59	32	3313	61	23	
	Aldebaran E.	39	26	36	3103	37	58	30	3104	36	30	25	3103	35	2	
	Jupiter E.	41	41	58	3117	40	14	9	3115	38	46	18	3113	37	18	
	Mars E.	47	51	42	3307	46	27	38	3305	45	3	32	3303	43	39	
	Pollux E.	83	34	48	3088	82	6	24	3087	80	37	58	3085	79	9	
	SUN E.	122	46	52	3465	121	25	49	3463	120	4	44	3461	118	43	
25	α Aquilæ W.	100	43	2	3809	101	57	55	3812	103	12	45	3817	104	27	
	Fomalhaut W.	68	25	47	3259	69	50	46	3251	71	15	55	3241	72	41	
	Jupiter E.	29	57	59	3092	28	29	39	3086	27	1	12	3081	25	32	
	Mars E.	36	37	45	3280	35	13	10	3274	33	48	28	3269	32	23	
	Pollux E.	71	46	18	3065	70	17	25	3061	68	48	27	3055	67	19	
	SUN E.	111	56	56	3436	110	35	20	3431	109	13	38	3424	107	51	
26	Fomalhaut W.	79	50	44	3184	81	17	12	3174	82	43	52	3163	84	10	
	α Pegasi W.	63	22	33	3516	64	42	39	3495	66	3	9	3474	67	24	
	Mars E.	25	17	35	3223	23	51	53	3215	22	26	1	3204	20	59	
	Pollux E.	59	52	4	3015	58	22	10	3007	56	52	6	2999	55	21	
	SUN E.	101	0	41	3378	99	37	59	3368	98	15	6	3359	96	52	
27	Fomalhaut W.	91	28	22	3098	92	56	34	3086	94	25	1	3075	95	53	
	α Pegasi W.	74	14	0	3359	75	37	4	3340	77	0	29	3322	78	24	
	Pollux E.	47	47	44	2941	46	16	17	2929	44	44	35	2919	43	12	
	SUN E.	89	53	32	3289	88	29	8	3277	87	4	29	3264	85	39	
28	α Pegasi W.	85	28	6	3220	86	53	51	3203	88	19	57	3188	89	46	
	α Arietis W.	41	57	36	3093	43	25	54	3062	44	54	50	3032	46	24	
	Pollux E.	35	29	19	2849	33	55	54	2836	32	22	13	2824	30	48	
	SUN E.	78	30	46	3173	77	4	5	3158	75	37	6	3141	74	9	
29	α Arietis W.	54	0	48	2871	55	33	44	2846	57	7	12	2822	58	41	
	Aldebaran W.	22	7	2	2751	23	42	34	2725	25	18	41	2701	26	55	
	Jupiter W.	18	48	52	2714	20	25	14	2696	22	2	0	2678	23	39	
	SUN E.	66	47	55	3036	65	18	27	3018	63	48	37	3000	62	18	
30	α Arietis W.	66	38	47	2684	68	15	48	2663	69	53	18	2641	71	31	
	Aldebaran W.	35	6	17	2567	36	45	57	2547	38	26	5	2526	40	6	
	Jupiter W.	31	51	8	2567	33	30	48	2549	35	10	53	2530	36	51	
	Mars W.	22	40	49	2734	24	16	44	2715	25	53	4	2696	27	29	
	SUN E.	54	41	25	2887	53	8	50	2869	51	35	51	2849	50	2	
31	α Arietis W.	79	48	21	2519	81	29	8	2500	83	10	22	2480	84	52	
	Aldebaran W.	48	36	46	2408	50	20	9	2389	52	3	59	2371	53	48	
	Jupiter W.	45	20	32	2419	47	3	40	2401	48	47	14	2383	50	31	
	Mars W.	35	40	12	2580	37	19	35	2561	38	59	24	2543	40	39	
	SUN E.	42	9	34	2742	40	33	50	2725	38	57	43	2709	37	21	

MEAN TIME.

LUNAR DISTANCES.

the Month.	Stars' Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
3	α Aquilæ W.	85 42 51	3804	86 57 49	3802	88 12 49	3801	89 27 50	3799
	Fomalhaut W.	51 39 55	3374	53 2 41	3364	54 25 39	3352	55 48 50	3342
	Aldebaran E.	45 19 9	3100	43 50 59	3101	42 22 50	3102	40 54 43	3102
	Jupiter E.	47 33 1	3120	46 5 16	3119	44 37 30	3120	43 9 45	3119
	Mars E.	53 27 45	3310	52 3 45	3310	50 39 45	3309	49 15 44	3308
	Pollux E.	89 28 14	3091	87 59 53	3091	86 31 32	3091	85 3 11	3089
24	α Aquilæ W.	95 43 6	3800	96 58 8	3802	98 13 8	3803	99 28 7	3807
	Fomalhaut W.	62 47 35	3295	64 11 52	3286	65 36 20	3277	67 0 58	3268
	Aldebaran E.	33 34 13	3104	32 6 8	3103	30 38 2	3103	29 9 56	3103
	Jupiter E.	35 50 27	3108	34 22 27	3104	32 54 22	3101	31 26 13	3096
	Mars E.	42 15 12	3297	40 50 57	3294	39 26 38	3289	38 2 14	3285
	Pollux E.	77 40 59	3080	76 12 25	3077	74 43 47	3074	73 15 5	3069
	SUN E.	117 22 24	3455	116 1 9	3451	114 39 50	3447	113 18 26	3441
25	α Aquilæ W.	105 42 10	3826	106 56 45	3833	108 11 13	3839	109 25 35	3848
	Fomalhaut W.	74 6 47	3223	75 32 29	3214	76 58 22	3204	78 24 27	3194
	Jupiter E.	24 3 58	3068	22 35 9	3061	21 6 12	3054	19 37 6	3047
	Mars E.	30 58 44	3255	29 33 40	3248	28 8 28	3240	26 43 6	3232
	Pollux E.	65 50 11	3043	64 20 51	3037	62 51 24	3030	61 21 49	3022
	SUN E.	106 29 52	3411	105 7 48	3403	103 45 35	3395	102 23 13	3386
26	Fomalhaut W.	85 37 50	3143	87 5 8	3132	88 32 39	3120	90 0 24	3109
	α Pegasi W.	68 45 18	3434	70 6 56	3415	71 28 56	3395	72 51 17	3377
	Mars E.	19 33 41	3183	18 7 12	3173	16 40 30	3163	- - -	- - -
	Pollux E.	53 51 26	2981	52 20 49	2971	50 50 0	2962	49 18 59	2950
	SUN E.	95 28 46	3338	94 5 18	3326	92 41 36	3314	91 17 41	3302
27	Fomalhaut W.	97 22 37	3051	98 51 47	3039	100 21 12	3026	101 50 52	3014
	α Pegasi W.	79 48 21	3288	81 12 47	3271	82 37 33	3253	84 2 39	3236
	Pollux E.	41 40 30	2894	40 8 4	2884	38 35 24	2872	37 2 29	2860
	SUN E.	84 14 23	3236	82 48 56	3220	81 23 10	3205	79 57 7	3190
28	α Pegasi W.	91 13 4	3155	92 40 7	3141	94 7 27	3125	95 35 6	3110
	α Arietis W.	47 54 32	2976	49 25 15	2948	50 56 33	2922	52 28 24	2896
	Pollux E.	29 14 6	2804	27 39 43	2793	26 5 6	2782	24 30 15	2775
	SUN E.	72 42 6	3107	71 14 5	3090	69 45 43	3073	68 17 0	3055
29	α Arietis W.	60 15 41	2775	61 50 42	2751	63 26 14	2729	65 2 15	2706
	Aldebaran W.	28 32 30	2654	30 10 12	2632	31 48 24	2610	33 27 6	2588
	Jupiter W.	25 16 43	2642	26 54 41	2623	28 33 5	2604	30 11 54	2586
	SUN E.	60 47 47	2962	59 16 47	2944	57 45 24	2925	56 13 37	2905
30	α Arietis W.	73 9 46	2599	74 48 43	2578	76 28 8	2559	78 8 0	2538
	Aldebaran W.	41 47 47	2486	43 29 20	2466	45 11 21	2446	46 53 50	2427
	Jupiter W.	38 32 21	2493	40 13 44	2474	41 55 34	2455	43 37 50	2437
	Mars W.	29 7 3	2657	30 44 41	2638	32 22 45	2618	34 1 16	2599
	SUN E.	48 28 40	2813	46 54 29	2795	45 19 54	2777	43 44 56	2759
31	α Arietis W.	86 34 9	2445	88 16 40	2427	89 59 36	2411	91 42 55	2394
	Aldebaran W.	55 32 59	2335	57 18 8	2317	59 3 43	2300	60 49 42	2288
	Jupiter W.	52 15 38	2348	54 0 28	2331	55 45 43	2313	57 31 23	2297
	Mars W.	42 20 18	2505	44 1 24	2488	45 42 54	2471	47 24 48	2453
	SUN E.	35 44 26	2679	34 7 18	2665	32 29 51	2652	30 52 6	2640



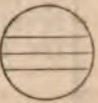
CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 14^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>	<i>Apparent East.</i>
1	.4 .3	○ .1 .2
2	.4	○ .1 .3 2.
3	2. .4	○ .1 .3
4	.1 .2	○ .4 .3
5		○ 1. .2 3. .4
6	3. ○	.1 ○ 2. .4
7	3. 2.	○ 1. .4
8	● .1 .3	○ .2 .4
9	.3 1.	○ 2. .4
10	2.	○ .1 .3 .4
11	1. .2	○ .4 .3
12		○ 4. 1. .2 3.
13	4. .1	○ 3. 2.
14	4. 3. .2	○ 1.
15	4. .3	○ .1 ● .2 ●
16	4. .3 1.	○ 2.
17	.4 2.	○ .3 .1
18	.4 .2 1.	○ .3
19	.4	○ .1 .2 3.
20	.1 .4	○ 3. 2.
21	3. .2	○ 1. .4
22	.2 ● 3.	.1 ○ .4
23	○ 1. .3	○ 2. .4
24		2. ○ 3. 1. .4
25	.2 1.	○ .3 .4
26		○ .1 .2 3. .4
27	.1	○ 3. .2 .4
28	2. 3.	○ 1. .4
29	3. .1 .2	○ .4 ○
30	.3 4.	○ 1. .2
31	4. .3	○ ● .1 ○ 2.

This Table represents, at 14^h after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page; —the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

LLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
		h m s	h m s	
	1	8 40 10.0	17 20 2.7	Im.
	3	3 8 34.8	11 55 26.1	Im.
	4	21 36 58.3	6 30 48.3	Im.
	6	16 5 22.9	1 6 11.5	Im.
	8	10 33 45.6	19 41 32.9	Im.
	10	5 2 10.4	14 16 56.3	Im.
	11	23 30 32.4	8 52 16.9	Im.
	13	17 58 56.5	3 27 39.6	Im.
	15*	12 27 18.5	22 3 0.3	Im. i
	17	6 55 42.3	16 38 22.7	Im. *
	19	1 24 3.5	11 13 42.5	Im.
	20	19 52 27.3	5 49 5.0	Im.
	22*	14 20 48.6	0 24 24.9	Im.
	24	8 49 11.7	18 59 46.6	Im.
	26	3 17 33.0	13 35 6.6	Im.
	27	21 45 55.8	8 10 28.0	Im.
	29	16 14 16.8	2 45 47.7	Im.
	31	10 42 39.5	21 21 9.0	Im.
				
I.	1	5 4 11.0	13 43 28.2	Im.
	1	7 21 38.4	16 1 18.2	Em.
	4	18 22 9.7	3 15 27.6	Im.
	4	20 39 40.0	5 33 20.6	Em.
	8	7 41 13.1	16 48 32.0	Im.
	8	9 58 47.3	19 6 28.8	Em.
	11	20 59 12.2	6 20 31.8	Im.
	11	23 16 50.9	8 38 33.2	Em.
	15	10 18 15.0	19 53 35.6	Im.
	15*	12 35 57.4	22 11 40.6	Em. i
	18	23 36 15.6	9 25 37.0	Im. *
	19	1 54 1.6	11 43 45.5	Em. e
	22*	12 55 19.8	22 58 42.0	Im.
	22*	15 13 9.9	1 16 54.8	Em.
	26	2 13 18.6	12 30 41.6	Im.
	26	4 31 12.8	14 48 58.5	Em.
	29*	15 32 25.6	2 3 49.6	Im.
	29	17 50 24.3	4 22 10.9	Em.
				
I.	2	17 30 59.0	2 16 15.4	Im.
	2	19 42 44.9	4 28 23.0	Em.
	9	21 30 26.2	6 43 57.9	Im.
	9	23 42 41.9	8 56 35.3	Em.
	17	1 30 24.7	11 12 11.7	Im.
	17	3 43 10.9	13 25 19.7	Em. i
	24	5 30 1.4	15 40 3.7	Im. e
	24	7 43 17.5	17 53 41.6	Em. *
	31	9 29 56.8	20 8 14.3	Im.
	31*	11 43 48.0	22 22 27.5	Em. *
				

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

	OCCULTATIONS.			TRANSITS OF SATELLITES.			TRANSITS OF SHADOWS.											
Satellite.	Immersion.			Emersion.			Ingress.			Egress.			Ingress.			Egress.		
	d	h	m	d	h	m	d	h	m	d	h	m	d	h	m	d	h	m
I.				1	20	45	2	15	48	2	18	4	2	14	35	2	16	4
				3	15	22	4	10	24	4	12	40	4	9	10	4	11	
				5	9	58	5	5	0	5	7	16	5	3	46	5	5	
				6	4	34	7*	23	36	7	1	52	7*	22	21	7*	0	
				8*	23	10	9	18	12	9	20	28	9	16	57	9	19	
				10	17	46	11	12	48	11	15	4	11	11	32	11	13	
		In		12	12	22	12	7	24	13	9	40	12	6	8	12	8	
				13	6	58	14	2	0	14	4	16	14*	0	43	14	2	
		the		15	1	35	16	20	36	16*	22	52	16	19	19	16*	21	
				17	20	10	18	15	12	18	17	28	18	13	54	18	16	
		Shadow.		19	14	46	19	9	48	20	12	4	19	8	30	20	10	
				20	9	22	21	4	24	21	6	40	21	3	5	21	5	
				22	3	57	23*	23	0	23*	1	15	23*	21	41	23*	23	
				24*	22	33	25	17	35	25	19	51	25	16	17	25	18	
				26	17	9	27	12	11	27	14	27	27	10	52	27	13	
				28	11	44	28	6	46	28	9	2	28	5	27	28	7	
				29	6	20	30*	1	22	30	3	37	30*	0	3	30*	2	
			31*	0	55													
II.	1	16	2	1	18	38	3	10	50	3	13	26	2	8	42	3	11	
	4	5	37	4	8	14	6*	0	26	6	3	2	6*	22	14	6*	0	
	8	19	14	8*	21	50	10	14	1	10	16	37	10	11	44	10	14	
	11	8	49	12	11	25	13	3	36	13	6	13	13	1	16	13	3	
	15*	22	24	15*	1	0	17	17	11	17	19	47	17	14	47	17	17	
	19	11	58	19	14	34	20	6	46	20	9	22	20	4	18	20	6	
	22*	1	33	22	4	9	24	20	19	24*	22	55	24	17	49	24	20	
	26	15	6	26	17	42	27	9	53	28	12	29	27	7	20	27	9	
	29	4	40	29	7	16	31*	23	26	31*	2	2	31	20	51	31*	23	
III.	2	7	16	3	9	30	6*	21	37	6*	23	51	6	16	22	6	18	
	10	11	57	10	14	11	13	2	16	13	4	30	13	20	50	13*	23	
	17	16	35	17	18	49	20	6	53	20	9	6	20*	1	17	20	3	
	24	21	11	24*	23	23	28	11	26	28	13	39	27	5	46	27	7	
	31*	1	42	31	3	54												

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .505048. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	+1.0717	-1.1983	+9.4217	-9.9466	15 19 1.78	131	212	.580
2	1.0804	1.1923	9.4265	9.9594	15 15 5.87	132	213	.583
3	1.0889	1.1861	9.4312	9.9718	15 11 9.96	133	214	.586
4	+1.0971	-1.1796	+9.4358	-9.9840	15 7 14.05	134	215	.589
5	1.1050	1.1730	9.4403	9.9958	15 3 18.14	135	216	.591
6	1.1127	1.1661	9.4447	0.0074	14 59 22.23	136	217	.594
7	+1.1201	-1.1590	+9.4491	-0.0186	14 55 26.32	137	218	.597
8	1.1273	1.1516	9.4533	0.0296	14 51 30.41	138	219	.600
9	1.1342	1.1440	9.4575	0.0403	14 47 34.50	139	220	.602
10	+1.1409	-1.1361	+9.4616	-0.0507	14 43 38.59	140	221	.605
11	1.1474	1.1279	9.4656	0.0609	14 39 42.68	141	222	.608
12	1.1537	1.1195	9.4696	0.0708	14 35 46.78	142	223	.611
13	+1.1598	-1.1107	+9.4734	-0.0804	14 31 50.87	143	224	.613
14	1.1656	1.1017	9.4772	0.0898	14 27 54.96	144	225	.616
15	1.1713	1.0923	9.4809	0.0990	14 23 59.05	145	226	.619
16	+1.1768	-1.0826	+9.4846	-0.1079	14 20 3.14	146	227	.622
17	1.1821	1.0726	9.4881	0.1166	14 16 7.23	147	228	.624
18	1.1872	1.0621	9.4917	0.1250	14 12 11.32	148	229	.627
19	+1.1921	-1.0513	+9.4951	-0.1332	14 8 15.41	149	230	.630
20	1.1969	1.0401	9.4985	0.1412	14 4 19.50	150	231	.632
21	1.2015	1.0285	9.5018	0.1489	14 0 23.60	151	232	.635
22	+1.2059	-1.0164	+9.5050	-0.1565	13 56 27.69	152	233	.638
23	1.2101	1.0038	9.5082	0.1638	13 52 31.78	153	234	.641
24	1.2142	0.9907	9.5113	0.1709	13 48 35.87	154	235	.643
25	+1.2182	-0.9771	+9.5144	-0.1778	13 44 39.96	155	236	.646
26	1.2219	0.9629	9.5174	0.1845	13 40 44.06	156	237	.649
27	1.2256	0.9481	9.5204	0.1910	13 36 48.15	157	238	.652
28	+1.2290	-0.9326	+9.5234	-0.1973	13 32 52.24	158	239	.654
29	1.2324	0.9165	9.5263	0.2034	13 28 56.33	159	240	.657
30	1.2355	0.8995	9.5291	0.2093	13 25 0.42	160	241	.660
31	1.2386	0.8817	9.5319	0.2150	13 21 4.51	161	242	.663
32	+1.2415	-0.8631	+9.5347	-0.2205	13 17 8.61	162	243	.665

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Mon.	1	10 40 36.16	9.075	N. 8 22 59.6	54.60	1 4.37	0 4.27	0.779
Tues.	2	10 44 13.96	9.065	8 1 9.3	54.92	1 4.32	0 22.98	0.790
Wed.	3	10 47 51.51	9.053	7 39 11.3	55.23	1 4.28	0 41.93	0.802
Thur.	4	10 51 28.77	9.042	7 17 5.8	55.52	1 4.24	1 1.17	0.813
Frid.	5	10 55 5.77	9.032	6 54 53.3	55.81	1 4.20	1 20.67	0.822
Sat.	6	10 58 42.54	9.023	6 32 33.8	56.08	1 4.17	1 40.40	0.831
Sun.	7	11 2 19.08	9.014	6 10 7.9	56.33	1 4.14	2 0.35	0.841
Mon.	8	11 5 55.41	9.006	5 47 36.0	56.58	1 4.11	2 20.53	0.848
Tues.	9	11 9 31.56	8.999	5 24 58.2	56.80	1 4.08	2 40.87	0.855
Wed.	10	11 13 7.54	8.992	5 2 15.1	57.00	1 4.06	3 1.39	0.862
Thur.	11	11 16 43.35	8.987	4 39 27.0	57.21	1 4.04	3 22.08	0.867
Frid.	12	11 20 19.03	8.982	4 16 34.0	57.39	1 4.03	3 42.89	0.872
Sat.	13	11 23 54.60	8.978	3 53 36.7	57.56	1 4.01	4 3.81	0.876
Sun.	14	11 27 30.07	8.975	3 30 35.3	57.71	1 4.00	4 24.84	0.879
Mon.	15	11 31 5.47	8.973	3 7 30.3	57.86	1 4.00	4 45.94	0.881
Tues.	16	11 34 40.82	8.972	2 44 21.7	57.99	1 4.00	5 7.08	0.882
Wed.	17	11 38 16.14	8.972	2 21 10.0	58.10	1 4.00	5 28.25	0.882
Thur.	18	11 41 51.46	8.973	1 57 55.6	58.21	1 4.00	5 49.43	0.881
Frid.	19	11 45 26.81	8.974	1 34 38.6	58.30	1 4.00	6 10.58	0.879
Sat.	20	11 49 2.19	8.977	1 11 19.5	58.38	1 4.01	6 31.68	0.877
Sun.	21	11 52 37.64	8.981	0 47 58.5	58.44	1 4.02	6 52.74	0.873
Mon.	22	11 56 13.18	8.986	0 24 35.9	58.49	1 4.03	7 13.70	0.868
Tues.	23	11 59 48.84	8.992	N. 0 1 12.2	58.53	1 4.05	7 34.52	0.863
Wed.	24	12 3 24.64	8.998	S. 0 22 12.5	58.55	1 4.07	7 55.23	0.855
Thur.	25	12 7 0.60	9.006	0 45 37.7	58.56	1 4.09	8 15.76	0.848
Frid.	26	12 10 36.74	9.014	1 9 3.2	58.56	1 4.12	8 36.12	0.841
Sat.	27	12 14 13.07	9.023	1 32 28.6	58.54	1 4.15	8 56.29	0.833
Sun.	28	12 17 49.62	9.033	1 55 53.5	58.51	1 4.18	9 16.24	0.821
Mon.	29	12 21 26.41	9.043	2 19 17.7	58.46	1 4.21	9 35.93	0.812
Tues.	30	12 25 3.45	9.055	2 42 40.6	58.39	1 4.25	9 55.40	0.799
Wed.	31	12 28 40.77		S. 3 6 2.0		1 4.29	10 14.58	

* Mean Time of the Semidiameter passing may be found by subtracting 0^m 18 from the *Sidereal* Time.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be subtracted from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	^d [°] ['] ["]	[°] ['] ["]	^m ^s	^h ^m ^s
Mon.	1	10 40 36·17	N. 8 22 59·5	15 52·7	0 4·27	10 40 40·44
Tues.	2	10 44 14·02	8 1 9·0	15 52·9	0 22·98	10 44 37·00
Wed.	3	10 47 51·61	7 39 10·7	15 53·2	0 41·94	10 48 33·55
Thur.	4	10 51 28·92	7 17 4·9	15 53·4	1 1·18	10 52 30·10
Frid.	5	10 55 5·97	6 54 52·0	15 53·7	1 20·69	10 56 26·66
Sat.	6	10 58 42·79	6 32 32·2	15 53·9	1 40·42	11 0 23·21
Sun.	7	11 2 19·38	6 10 6·0	15 54·2	2 0·38	11 4 19·76
Mon.	8	11 5 55·76	5 47 33·8	15 54·4	2 20·56	11 8 16·32
Tues.	9	11 9 31·96	5 24 55·7	15 54·7	2 40·91	11 12 12·87
Wed.	10	11 13 7·99	5 2 12·2	15 54·9	3 1·43	11 16 9·42
Thur.	11	11 16 43·85	4 39 23·8	15 55·2	3 22·13	11 20 5·98
Frid.	12	11 20 19·59	4 16 30·5	15 55·4	3 42·94	11 24 2·53
Sat.	13	11 23 55·21	3 53 32·8	15 55·7	4 3·87	11 27 59·08
Sun.	14	11 27 30·73	3 30 31·1	15 56·0	4 24·91	11 31 55·64
Mon.	15	11 31 6·18	3 7 25·7	15 56·2	4 46·01	11 35 52·19
Tues.	16	11 34 41·58	2 44 16·8	15 56·5	5 7·16	11 39 48·74
Wed.	17	11 38 16·96	2 21 4·7	15 56·8	5 28·33	11 43 45·29
Thur.	18	11 41 52·33	1 57 49·9	15 57·0	5 49·52	11 47 41·85
Frid.	19	11 45 27·73	1 34 32·6	15 57·3	6 10·67	11 51 38·40
Sat.	20	11 49 3·17	1 11 13·1	15 57·6	6 31·78	11 55 34·95
Sun.	21	11 52 38·67	0 47 51·8	15 57·8	6 52·84	11 59 31·51
Mon.	22	11 56 14·26	0 24 28·9	15 58·1	7 13·80	12 3 28·06
Tues.	23	11 59 49·98	N. 0 1 4·8	15 58·4	7 34·63	12 7 24·61
Wed.	24	12 3 25·83	S. 0 22 20·2	15 58·6	7 55·34	12 11 21·17
Thur.	25	12 7 1·84	0 45 45·8	15 58·9	8 15·88	12 15 17·72
Frid.	26	12 10 38·03	1 9 11·6	15 59·2	8 36·24	12 19 14·27
Sat.	27	12 14 14·41	1 32 37·3	15 59·4	8 56·41	12 23 10·82
Sun.	28	12 17 51·01	1 56 2·5	15 59·7	9 16·37	12 27 7·38
Mon.	29	12 21 27·86	2 19 27·0	16 0·0	9 36·07	12 31 3·93
Tues.	30	12 25 4·95	2 42 50·3	16 0·2	9 55·53	12 35 0·48
Wed.	31	12 28 42·32	S. 3 6 12·0	16 0·5	10 14·72	12 38 57·04

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.	Noon.	Noon.	Midnight.	Noon.	Midnight.
1	158 31 8.4	N. 0° 17'	0.0037165	16 9.3	16 15.9	59 17.0	59 41.4
2	159 29 18.2	0° 25'	0.0036108	16 21.9	16 26.9	60 3.2	60 21.8
3	160 27 29.8	0° 28'	0.0035037	16 31.0	16 33.9	60 36.6	60 47.4
4	161 25 43.2	0° 29'	0.0033949	16 35.7	16 36.3	60 53.9	60 56.0
5	162 23 58.1	0° 27'	0.0032845	16 35.7	16 33.8	60 53.8	60 47.1
6	163 22 14.9	0° 22'	0.0031726	16 30.9	16 27.2	60 36.6	60 22.7
7	164 20 33.2	0° 15'	0.0030593	16 22.6	16 17.4	60 5.8	59 46.6
8	165 18 53.1	N. 0° 06'	0.0029447	16 11.7	16 5.6	59 25.7	59 3.5
9	166 17 14.6	S. 0° 05'	0.0028288	15 59.4	15 53.0	58 40.7	58 17.4
10	167 15 37.8	0° 17'	0.0027119	15 46.8	15 40.7	57 54.4	57 32.0
11	168 14 2.3	0° 29'	0.0025941	15 34.7	15 29.1	57 10.3	56 49.6
12	169 12 28.7	0° 40'	0.0024755	15 23.7	15 18.6	56 29.7	56 11.0
13	170 10 56.6	0° 52'	0.0023564	15 13.9	15 9.5	55 53.7	55 37.5
14	171 9 26.1	0° 61'	0.0022368	15 5.4	15 1.6	55 22.5	55 8.7
15	172 7 57.3	0° 69'	0.0021168	14 58.2	14 55.1	54 56.1	54 44.6
16	173 6 30.3	0° 74'	0.0019968	14 52.3	14 49.9	54 34.5	54 25.5
17	174 5 5.2	0° 77'	0.0018764	14 47.7	14 45.9	54 17.6	54 11.0
18	175 3 41.9	0° 76'	0.0017561	14 44.5	14 43.3	54 5.7	54 1.4
19	176 2 20.6	0° 72'	0.0016357	14 42.5	14 42.2	53 58.7	53 57.3
20	177 1 1.4	0° 67'	0.0015153	14 42.2	14 42.7	53 57.4	53 59.1
21	177 59 44.1	0° 59'	0.0013948	14 43.6	14 45.0	54 2.5	54 7.5
22	178 58 29.1	0° 49'	0.0012744	14 46.8	14 49.2	54 14.3	54 23.2
23	179 57 16.3	0° 37'	0.0011538	14 52.2	14 55.7	54 34.0	54 47.1
24	180 56 5.7	0° 25'	0.0010331	14 59.8	15 4.5	55 2.1	55 19.4
25	181 54 57.5	S. 0° 12'	0.0009122	15 9.9	15 15.7	55 39.0	56 0.5
26	182 53 51.5	0° 00'	0.0007910	15 22.2	15 29.2	56 24.1	56 49.8
27	183 52 47.7	N. 0° 12'	0.0006694	15 36.5	15 44.1	57 16.6	57 44.7
28	184 51 46.2	0° 20'	0.0005472	15 52.0	16 0.0	58 13.7	58 42.9
29	185 50 47.1	0° 28'	0.0004245	16 7.7	16 15.2	59 11.3	59 38.8
30	186 49 50.1	0° 32'	0.0003012	16 22.2	16 28.5	60 4.5	60 27.5
31	187 48 55.4	N. 0° 33'	0.0001773	16 33.8	16 38.0	60 47.0	61 2.5

MEAN TIME.

Days of the Week.	Days of the Month.	THE MOON'S					
		Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d	^h ^m
Mon.	1	129 29 17.5	136 40 27.5	N. 3 36 29.0	N. 4 1 3.5	27.2	23 4.5
Tues.	2	143 57 47.1	151 20 31.2	4 22 2.8	4 38 55.2	28.2	♂
Wed.	3	158 47 40.0	166 18 7.3	4 51 12.9	4 58 35.5	29.2	0 0.6
Thur.	4	173 50 38.3	181 23 55.0	5 0 48.3	4 57 46.6	0.9	0 54.9
Frid.	5	188 56 39.4	196 27 38.0	4 49 33.0	4 36 20.5	1.9	1 47.8
Sat.	6	203 55 43.9	211 19 59.4	4 18 27.7	3 56 21.5	2.9	2 40.2
Sun.	7	218 39 37.2	225 54 4.8	3 30 32.9	3 1 36.1	3.9	3 32.9
Mon.	8	233 2 58.5	240 6 6.9	2 30 8.0	1 56 45.0	4.9	4 26.6
Tues.	9	247 3 27.2	253 55 5.8	1 22 2.9	N. 0 46 36.4	5.9	5 21.6
Wed.	10	260 41 14.6	267 22 11.0	N. 0 10 58.7	S. 0 24 21.0	6.9	6 17.5
Thur.	11	273 58 13.4	280 29 46.4	S. 0 58 54.4	1 32 16.2	7.9	7 13.5
Frid.	12	286 57 10.7	293 20 49.9	2 4 4.2	2 33 57.4	8.9	8 8.4
Sat.	13	299 41 4.3	305 58 14.5	3 1 38.0	3 26 50.0	9.9	9 1.0
Sun.	14	312 12 38.3	318 24 30.8	3 49 19.8	4 8 55.1	10.9	9 50.7
Mon.	15	324 34 6.1	330 41 35.6	4 25 26.5	4 38 47.4	11.9	10 37.5
Tues.	16	336 47 9.6	342 50 56.5	4 48 51.1	4 55 34.2	12.9	11 21.6
Wed.	17	348 53 4.3	354 53 40.2	4 58 56.2	4 58 56.5	13.9	12 3.6
Thur.	18	0 52 53.0	6 50 50.7	4 55 38.0	4 49 4.7	14.9	12 44.3
Frid.	19	12 47 42.7	18 43 41.7	4 39 23.0	4 26 39.1	15.9	13 24.6
Sat.	20	24 39 0.7	30 33 56.2	4 11 2.4	3 52 42.4	16.9	14 5.2
Sun.	21	36 28 47.2	42 23 55.7	3 31 50.3	3 8 38.0	17.9	14 47.0
Mon.	22	48 19 46.0	54 16 45.5	2 43 17.8	2 16 4.3	18.9	15 30.9
Tues.	23	60 15 24.5	66 16 16.7	1 47 10.7	1 16 53.2	19.9	16 17.4
Wed.	24	72 19 56.2	78 27 0.0	S. 0 45 27.7	S. 0 13 11.9	20.9	17 7.0
Thur.	25	84 38 6.5	90 53 53.6	N. 0 19 35.4	N. 0 52 33.7	21.9	17 59.6
Frid.	26	97 14 58.8	103 41 58.6	1 25 20.8	1 57 33.3	22.9	18 54.7
Sat.	27	110 15 25.9	116 55 48.9	2 28 44.1	2 58 25.4	23.9	19 51.1
Sun.	28	123 43 29.4	130 38 41.0	3 26 7.5	3 51 18.1	24.9	20 47.7
Mon.	29	137 41 27.6	144 51 39.9	4 13 25.6	4 31 57.9	25.9	21 43.6
Tues.	30	152 8 56.1	159 32 40.3	4 46 23.9	4 56 16.7	26.9	22 38.3
Wed.	31	167 2 1.8	174 35 56.2	N. 5 1 13.6	N. 5 0 58.4	27.9	23 32.1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
MONDAY 1.				WEDNESDAY 3.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	8 51 50.86	N. 21 22 9.5	76.49	0	10 49 5.66	N. 12 46 26.8	134.71
1	8 54 20.46	21 14 30.5	77.96	1	10 51 28.27	12 32 58.5	135.57
2	8 56 49.99	21 6 42.7	79.43	2	10 53 50.70	12 19 25.1	136.42
3	8 59 19.43	20 58 46.2	80.88	3	10 56 12.97	12 5 46.6	137.25
4	9 1 48.78	20 50 40.9	82.33	4	10 58 35.07	11 52 3.1	138.06
5	9 4 18.04	20 42 26.9	83.77	5	11 0 57.00	11 38 14.8	138.84
6	9 6 47.21	20 34 4.2	85.21	6	11 3 18.77	11 24 21.7	139.63
7	9 9 16.27	20 25 33.0	86.63	7	11 5 40.37	11 10 23.9	140.39
8	9 11 45.24	20 16 53.2	88.05	8	11 8 1.80	10 56 21.6	141.13
9	9 14 14.09	20 8 4.9	89.45	9	11 10 23.07	10 42 14.8	141.85
10	9 16 42.84	19 59 8.2	90.85	10	11 12 44.18	10 28 3.7	142.56
11	9 19 11.46	19 50 3.1	92.24	11	11 15 5.13	10 13 48.3	143.25
12	9 21 39.97	19 40 49.7	93.61	12	11 17 25.92	9 59 28.8	143.92
13	9 24 8.35	19 31 28.0	94.98	13	11 19 46.55	9 45 5.3	144.58
14	9 26 36.60	19 21 58.1	96.34	14	11 22 7.03	9 30 37.8	145.21
15	9 29 4.73	19 12 20.1	97.68	15	11 24 27.36	9 16 6.5	145.83
16	9 31 32.72	19 2 34.0	99.02	16	11 26 47.53	9 1 31.6	146.43
17	9 34 0.58	18 52 39.9	100.34	17	11 29 7.55	8 46 53.0	147.01
18	9 36 28.29	18 42 37.8	101.65	18	11 31 27.42	8 32 11.0	147.57
19	9 38 55.87	18 32 27.9	102.95	19	11 33 47.15	8 17 25.5	148.11
20	9 41 23.30	18 22 10.2	104.24	20	11 36 6.74	8 2 36.8	148.64
21	9 43 50.58	18 11 44.7	105.52	21	11 38 26.19	7 47 45.0	149.15
22	9 46 17.72	18 1 11.6	106.79	22	11 40 45.49	7 32 50.1	149.64
23	9 48 44.71	N. 17 50 30.9	108.04	23	11 43 4.67	N. 7 17 52.3	150.11
TUESDAY 2.				THURSDAY 4.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	9 51 11.54	N. 17 39 42.7	109.28	0	11 45 23.70	N. 7 2 51.6	150.56
1	9 53 38.22	17 28 47.0	110.51	1	11 47 42.61	6 47 48.3	150.99
2	9 56 4.75	17 17 43.9	111.72	2	11 50 1.39	6 32 42.3	151.41
3	9 58 31.11	17 6 33.6	112.92	3	11 52 20.04	6 17 33.9	151.80
4	10 0 57.31	16 55 16.1	114.11	4	11 54 38.57	6 2 23.0	152.18
5	10 3 23.35	16 43 51.4	115.28	5	11 56 56.98	5 47 9.9	152.54
6	10 5 49.22	16 32 19.8	116.44	6	11 59 15.27	5 31 54.7	152.89
7	10 8 14.93	16 20 41.1	117.58	7	12 1 33.44	5 16 37.4	153.21
8	10 10 40.47	16 8 55.6	118.71	8	12 3 51.50	5 1 18.1	153.52
9	10 13 5.84	15 57 3.3	119.83	9	12 6 9.46	4 45 57.0	153.80
10	10 15 31.04	15 45 4.4	120.93	10	12 8 27.30	4 30 34.2	154.07
11	10 17 56.07	15 32 58.8	122.02	11	12 10 45.04	4 15 9.8	154.32
12	10 20 20.92	15 20 46.7	123.09	12	12 13 2.68	3 59 43.9	154.56
13	10 22 45.60	15 8 28.1	124.15	13	12 15 20.22	3 44 16.5	154.77
14	10 25 10.11	14 56 3.2	125.19	14	12 17 37.67	3 28 47.9	154.96
15	10 27 34.45	14 43 32.1	126.21	15	12 19 55.03	3 13 18.1	155.14
16	10 29 58.61	14 30 54.9	127.22	16	12 22 12.30	2 57 47.3	155.30
17	10 32 22.60	14 18 11.5	128.21	17	12 24 29.48	2 42 15.5	155.44
18	10 34 46.41	14 5 22.3	129.19	18	12 26 46.59	2 26 42.9	155.56
19	10 37 10.05	13 52 27.1	130.15	19	12 29 3.61	2 11 9.6	155.66
20	10 39 33.52	13 39 26.2	131.10	20	12 31 20.56	1 55 35.6	155.74
21	10 41 56.82	13 26 19.6	132.03	21	12 33 37.44	1 40 1.1	155.81
22	10 44 19.94	13 13 7.4	132.94	22	12 35 54.24	1 24 26.3	155.86
23	10 46 42.89	12 59 49.8	133.84	23	12 38 10.99	1 8 51.1	155.89
24	10 49 5.66	N. 12 46 26.8		24	12 40 27.67	N. 0 53 15.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 5.				SUNDAY 7.			
0	12 40 27.67	N. 0 53 15.8	155.90	0	14 29 41.08	S. 11 4 31.0	135.51
1	12 42 44.30	0 37 40.4	155.89	1	14 31 58.73	11 18 10.1	135.73
2	12 45 0.87	0 22 5.1	155.86	2	14 34 16.47	11 31 44.4	134.93
3	12 47 17.38	N. 0 6 29.9	155.82	3	14 36 34.31	11 45 14.0	134.12
4	12 49 33.86	S. 0 9 5.0	155.76	4	14 38 52.24	11 58 38.7	133.29
5	12 51 50.28	0 24 39.6	155.68	5	14 41 10.27	12 11 58.4	132.45
6	12 54 6.67	0 40 13.7	155.59	6	14 43 28.40	12 25 13.1	131.60
7	12 56 23.01	0 55 47.2	155.48	7	14 45 46.63	12 38 22.7	130.73
8	12 58 39.33	1 11 20.1	155.35	8	14 48 4.96	12 51 27.1	129.85
9	13 0 55.61	1 26 52.2	155.20	9	14 50 23.40	13 4 26.2	128.96
10	13 3 11.86	1 42 23.3	155.03	10	14 52 41.95	13 17 20.0	128.05
11	13 5 28.08	1 57 53.5	154.85	11	14 55 0.60	13 30 8.3	127.13
12	13 7 44.29	2 13 22.6	154.65	12	14 57 19.36	13 42 51.1	126.20
13	13 10 0.48	2 28 50.5	154.43	13	14 59 38.23	13 55 28.3	125.26
14	13 12 16.65	2 44 17.1	154.20	14	15 1 57.21	14 7 59.9	124.30
15	13 14 32.82	2 59 42.3	153.95	15	15 4 16.31	14 20 25.7	123.33
16	13 16 48.97	3 15 6.0	153.68	16	15 6 35.52	14 32 45.6	122.35
17	13 19 5.12	3 30 28.1	153.39	17	15 8 54.85	14 44 59.7	121.36
18	13 21 21.27	3 45 48.4	153.09	18	15 11 14.29	14 57 7.9	120.35
19	13 23 37.42	4 1 6.9	152.77	19	15 13 33.85	15 9 10.0	119.33
20	13 25 53.58	4 16 23.5	152.43	20	15 15 53.53	15 21 6.0	118.30
21	13 28 9.75	4 31 38.1	152.08	21	15 18 13.33	15 32 55.8	117.26
22	13 30 25.93	4 46 50.6	151.71	22	15 20 33.25	15 44 39.4	116.21
23	13 32 42.12	S. 5 2 0.8	151.32	23	15 22 53.29	S. 15 56 16.7	115.15
SATURDAY 6.				MONDAY 8.			
0	13 34 58.34	S. 5 17 8.7	150.91	0	15 25 13.45	S. 16 7 47.6	114.08
1	13 37 14.58	5 32 14.2	150.49	1	15 27 33.73	16 19 12.0	112.99
2	13 39 30.85	5 47 17.1	150.05	2	15 29 54.14	16 30 30.0	111.90
3	13 41 47.14	6 2 17.4	149.60	3	15 32 14.67	16 41 41.4	110.79
4	13 44 3.47	6 17 15.0	149.13	4	15 34 35.32	16 52 46.1	109.67
5	13 46 19.83	6 32 9.8	148.65	5	15 36 56.09	17 3 44.1	108.55
6	13 48 36.23	6 47 1.7	148.14	6	15 39 16.98	17 14 35.4	107.41
7	13 50 52.66	7 1 50.6	147.63	7	15 41 38.00	17 25 19.8	106.26
8	13 53 9.14	7 16 36.3	147.09	8	15 43 59.14	17 35 57.4	105.10
9	13 55 25.67	7 31 18.9	146.54	9	15 46 20.40	17 46 28.0	103.93
10	13 57 42.25	7 45 58.1	145.98	10	15 48 41.78	17 56 51.6	102.76
11	13 59 58.88	8 0 34.0	145.40	11	15 51 3.29	18 7 8.2	101.57
12	14 2 15.56	8 15 6.4	144.80	12	15 53 24.91	18 17 17.6	100.37
13	14 4 32.30	8 29 35.2	144.19	13	15 55 46.65	18 27 19.8	99.17
14	14 6 49.10	8 44 0.4	143.57	14	15 58 8.52	18 37 14.9	97.95
15	14 9 5.97	8 58 21.8	142.93	15	16 0 30.50	18 47 2.6	96.73
16	14 11 22.90	9 12 39.4	142.27	16	16 2 52.59	18 56 43.0	95.50
17	14 13 39.91	9 26 53.0	141.60	17	16 5 14.80	19 6 15.9	94.26
18	14 15 56.98	9 41 2.6	140.92	18	16 7 37.13	19 15 41.5	93.00
19	14 18 14.13	9 55 8.1	140.22	19	16 9 59.57	19 24 59.5	91.75
20	14 20 31.35	10 9 9.4	139.50	20	16 12 22.12	19 34 10.0	90.48
21	14 22 48.66	10 23 6.4	138.78	21	16 14 44.79	19 43 12.9	89.21
22	14 25 6.05	10 36 59.1	138.03	22	16 17 7.56	19 52 8.1	87.92
23	14 27 23.52	10 50 47.3	137.28	23	16 19 30.44	20 0 55.7	86.63
24	14 29 41.08	S. 11 4 31.0		24	16 21 53.43	S. 20 9 35.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 9.				THURSDAY 11.			
0	16 21 53.43	S. 20 9 35.5	85.34	0	18 17 26.23	S. 24 22 58.8	17
1	16 24 16.53	20 18 7.5	84.03	1	18 19 50.58	24 24 44.9	16
2	16 26 39.72	20 26 31.7	82.72	2	18 22 14.85	24 26 22.4	14
3	16 29 3.02	20 34 48.0	81.40	3	18 24 39.05	24 27 51.2	13
4	16 31 26.41	20 42 56.4	80.07	4	18 27 3.15	24 29 11.4	11
5	16 33 49.90	20 50 56.8	78.74	5	18 29 27.17	24 30 22.9	10
6	16 36 13.49	20 58 49.3	77.40	6	18 31 51.09	24 31 25.9	9
7	16 38 37.16	21 6 33.6	76.05	7	18 34 14.91	24 32 20.3	7
8	16 41 0.93	21 14 10.0	74.70	8	18 36 38.63	24 33 6.1	6
9	16 43 24.78	21 21 38.2	73.34	9	18 39 2.24	24 33 43.3	4
10	16 45 48.71	21 28 58.2	71.98	10	18 41 25.74	24 34 12.0	3
11	16 48 12.73	21 36 10.1	70.61	11	18 43 49.11	24 34 32.2	1
12	16 50 36.82	21 43 13.7	69.23	12	18 46 12.37	24 34 43.9	0
13	16 53 0.99	21 50 9.1	67.85	13	18 48 35.49	24 34 47.2	0
14	16 55 25.23	21 56 56.2	66.46	14	18 50 58.48	24 34 42.1	2
15	16 57 49.54	22 3 34.9	65.07	15	18 53 21.33	24 34 28.5	3
16	17 0 13.92	22 10 5.4	63.68	16	18 55 44.04	24 34 6.5	5
17	17 2 38.35	22 16 27.4	62.28	17	18 58 6.60	24 33 36.1	6
18	17 5 2.85	22 22 41.1	60.87	18	19 0 29.02	24 32 57.4	7
19	17 7 27.41	22 28 46.3	59.46	19	19 2 51.27	24 32 10.3	9
20	17 9 52.01	22 34 43.1	58.05	20	19 5 13.37	24 31 15.0	10
21	17 12 16.67	22 40 31.4	56.64	21	19 7 35.30	24 30 11.4	11
22	17 14 41.37	22 46 11.2	55.22	22	19 9 57.07	24 28 59.5	13
23	17 17 6.12	S. 22 51 42.5	53.79	23	19 12 18.67	S. 24 27 39.4	14
WEDNESDAY 10.				FRIDAY 12.			
0	17 19 30.90	S. 22 57 5.3	52.37	0	19 14 40.09	S. 24 26 11.1	16
1	17 21 55.72	23 2 19.5	50.94	1	19 17 1.33	24 24 34.7	17
2	17 24 20.57	23 7 25.2	49.51	2	19 19 22.39	24 22 50.1	18
3	17 26 45.44	23 12 22.2	48.08	3	19 21 43.26	24 20 57.4	20
4	17 29 10.34	23 17 10.7	46.64	4	19 24 3.94	24 18 56.7	21
5	17 31 35.26	23 21 50.5	45.20	5	19 26 24.42	24 16 48.0	22
6	17 34 0.18	23 26 21.8	43.76	6	19 28 44.70	24 14 31.3	24
7	17 36 25.12	23 30 44.3	42.32	7	19 31 4.78	24 12 6.7	25
8	17 38 50.07	23 34 58.2	40.88	8	19 33 24.66	24 9 34.2	26
9	17 41 15.01	23 39 3.5	39.43	9	19 35 44.32	24 6 53.9	28
10	17 43 39.95	23 43 0.1	37.98	10	19 38 3.76	24 4 5.8	29
11	17 46 4.89	23 46 48.0	36.53	11	19 40 22.99	24 1 9.9	30
12	17 48 29.81	23 50 27.2	35.08	12	19 42 42.00	23 58 6.3	31
13	17 50 54.71	23 53 57.7	33.63	13	19 45 0.78	23 54 55.0	33
14	17 53 19.59	23 57 19.5	32.18	14	19 47 19.34	23 51 36.2	34
15	17 55 44.45	24 0 32.6	30.73	15	19 49 37.66	23 48 9.7	35
16	17 58 9.27	24 3 36.9	29.28	16	19 51 55.75	23 44 35.7	36
17	18 0 34.06	24 6 32.6	27.83	17	19 54 13.60	23 40 54.3	38
18	18 2 58.81	24 9 19.6	26.38	18	19 56 31.21	23 37 5.3	39
19	18 5 23.51	24 11 57.9	24.93	19	19 58 48.58	23 33 9.0	40
20	18 7 48.17	24 14 27.5	23.48	20	20 1 5.70	23 29 5.3	41
21	18 10 12.78	24 16 48.3	22.03	21	20 3 22.58	23 24 54.3	43
22	18 12 37.32	24 19 0.5	20.58	22	20 5 39.20	23 20 36.0	44
23	18 15 1.81	24 21 4.0	19.14	23	20 7 55.58	23 16 10.6	45
24	18 17 26.23	S. 24 22 58.8		24	20 10 11.70	S. 23 11 37.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

rs.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 13.				MONDAY 15.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	20 10 11.70	S. 23 11 37.9	46.63	0	21 53 39.33	S. 17 30 37.9	92.80
1	20 12 27.56	23 6 58.2	47.81	1	21 55 41.73	17 21 21.1	93.52
2	20 14 43.17	23 2 11.3	48.98	2	21 57 43.87	17 12 0.0	94.24
3	20 16 58.51	22 57 17.5	50.14	3	21 59 45.73	17 2 34.5	94.95
4	20 19 13.58	22 52 16.6	51.29	4	22 1 47.32	16 53 4.8	95.65
5	20 21 28.40	22 47 8.9	52.43	5	22 3 48.65	16 43 30.9	96.34
6	20 23 42.94	22 41 54.3	53.57	6	22 5 49.71	16 33 52.9	97.02
7	20 25 57.21	22 36 32.9	54.69	7	22 7 50.50	16 24 10.7	97.69
8	20 28 11.22	22 31 4.8	55.81	8	22 9 51.03	16 14 24.6	98.36
9	20 30 24.95	22 25 29.9	56.92	9	22 11 51.31	16 4 34.4	99.01
10	20 32 38.41	22 19 48.4	58.02	10	22 13 51.32	15 54 40.3	99.66
11	20 34 51.59	22 14 0.3	59.11	11	22 15 51.08	15 44 42.4	100.29
12	20 37 4.49	22 8 5.7	60.18	12	22 17 50.58	15 34 40.7	100.92
13	20 39 17.12	22 2 4.6	61.26	13	22 19 49.83	15 24 35.2	101.53
14	20 41 29.46	21 55 57.1	62.32	14	22 21 48.83	15 14 26.0	102.14
15	20 43 41.53	21 49 43.2	63.37	15	22 23 47.58	15 4 13.1	102.74
16	20 45 53.31	21 43 22.9	64.41	16	22 25 46.08	14 53 56.7	103.33
17	20 48 4.81	21 36 56.4	65.45	17	22 27 44.34	14 43 36.7	103.91
18	20 50 16.03	21 30 23.7	66.48	18	22 29 42.35	14 33 13.2	104.48
19	20 52 26.96	21 23 44.9	67.49	19	22 31 40.13	14 22 46.4	105.04
20	20 54 37.61	21 16 59.9	68.50	20	22 33 37.66	14 12 16.1	105.60
21	20 56 47.97	21 10 9.0	69.50	21	22 35 34.96	14 1 42.5	106.14
22	20 58 58.04	21 3 12.0	70.48	22	22 37 32.03	13 51 5.7	106.67
23	21 1 7.82	S. 20 56 9.1	71.46	23	22 39 28.86	S. 13 40 25.6	107.20
SUNDAY 14.				TUESDAY 16.			
0	21 3 17.32	S. 20 49 0.3	72.43	0	22 41 25.46	S. 13 29 42.5	107.72
1	21 5 26.53	20 41 45.7	73.39	1	22 43 21.84	13 18 56.1	108.23
2	21 7 35.45	20 34 25.4	74.34	2	22 45 17.99	13 8 6.8	108.72
3	21 9 44.08	20 26 59.3	75.28	3	22 47 13.92	12 57 14.5	109.21
4	21 11 52.42	20 19 27.6	76.21	4	22 49 9.63	12 46 19.2	109.69
5	21 14 0.47	20 11 50.3	77.13	5	22 51 5.12	12 35 21.0	110.17
6	21 16 8.24	20 4 7.5	78.05	6	22 53 0.40	12 24 20.0	110.63
7	21 18 15.72	19 56 19.3	78.95	7	22 54 55.46	12 13 16.2	111.08
8	21 20 22.91	19 48 25.6	79.84	8	22 56 50.32	12 2 9.7	111.53
9	21 22 29.82	19 40 26.5	80.72	9	22 58 44.97	11 51 0.5	111.97
10	21 24 36.43	19 32 22.2	81.60	10	23 0 39.42	11 39 48.7	112.40
11	21 26 42.76	19 24 12.6	82.46	11	23 2 33.66	11 28 34.4	112.82
12	21 28 48.81	19 15 57.9	83.32	12	23 4 27.71	11 17 17.5	113.22
13	21 30 54.57	19 7 38.0	84.16	13	23 6 21.56	11 5 58.1	113.63
14	21 33 0.05	18 59 13.0	84.99	14	23 8 15.22	10 54 36.4	114.02
15	21 35 5.24	18 50 43.1	85.82	15	23 10 8.69	10 43 12.3	114.41
16	21 37 10.15	18 42 8.2	86.63	16	23 12 1.97	10 31 45.8	114.78
17	21 39 14.77	18 33 28.4	87.44	17	23 13 55.07	10 20 17.1	115.15
18	21 41 19.12	18 24 43.8	88.23	18	23 15 47.98	10 8 46.2	115.51
19	21 43 23.18	18 15 54.4	89.02	19	23 17 40.72	9 57 13.1	115.87
20	21 45 26.96	18 7 0.3	89.79	20	23 19 33.28	9 45 37.9	116.21
21	21 47 30.47	17 58 1.5	90.56	21	23 21 25.66	9 34 0.6	116.55
22	21 49 33.70	17 48 58.2	91.32	22	23 23 17.88	9 22 21.3	116.88
23	21 51 36.65	17 39 50.3	92.06	23	23 25 9.93	9 10 40.1	117.20
24	21 53 39.33	S. 17 30 37.9		24	23 27 1.81	S. 8 58 56.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
WEDNESDAY 17.				FRIDAY 19.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	^{N.} [°] ['] ["]
0	23 27 1'81	S. 8 58 56'9	117'51	0	0 54 19'56	N. 0 46 6'7
1	23 28 53'53	8 47 11'8	117'82	1	0 56 7'23	0 58 28'0
2	23 30 45'09	8 35 24'9	118'12	2	0 57 54'89	1 10 48'9
3	23 32 36'50	8 23 36'2	118'40	3	0 59 42'55	1 23 9'5
4	23 34 27'75	8 11 45'8	118'68	4	1 1 30'22	1 35 29'7
5	23 36 18'86	7 59 53'7	118'96	5	1 3 17'89	1 47 49'5
6	23 38 9'81	7 47 59'9	119'22	6	1 5 5'57	2 0 8'8
7	23 40 0'63	7 36 4'6	119'48	7	1 6 53'25	2 12 27'6
8	23 41 51'30	7 24 7'7	119'73	8	1 8 40'96	2 24 45'8
9	23 43 41'84	7 12 9'3	119'97	9	1 10 28'68	2 37 3'5
10	23 45 32'24	7 0 9'5	120'20	10	1 12 16'42	2 49 20'5
11	23 47 22'51	6 48 8'3	120'43	11	1 14 4'19	3 1 36'8
12	23 49 12'65	6 36 5'8	120'64	12	1 15 51'99	3 13 52'4
13	23 51 2'67	6 24 1'9	120'86	13	1 17 39'82	3 26 7'1
14	23 52 52'57	6 11 56'8	121'06	14	1 19 27'68	3 38 21'1
15	23 54 42'35	5 59 50'4	121'25	15	1 21 15'59	3 50 34'3
16	23 56 32'01	5 47 42'9	121'44	16	1 23 3'53	4 2 46'5
17	23 58 21'56	5 35 34'3	121'62	17	1 24 51'52	4 14 57'8
18	0 0 11'01	5 23 24'6	121'79	18	1 26 39'55	4 27 8'2
19	0 2 0'34	5 11 13'8	121'96	19	1 28 27'64	4 39 17'5
20	0 3 49'58	4 59 2'1	122'11	20	1 30 15'79	4 51 25'8
21	0 5 38'71	4 46 49'4	122'26	21	1 32 3'99	5 3 32'9
22	0 7 27'75	4 34 35'8	122'40	22	1 33 52'25	5 15 39'0
23	0 9 16'70	S. 4 22 21'4	122'54	23	1 35 40'58	N. 5 27 43'9
THURSDAY 18.				SATURDAY 20.		
0	0 11 5'56	S. 4 10 6'2	122'67	0	1 37 28'97	N. 5 39 47'5
1	0 12 54'33	3 57 50'2	122'79	1	1 39 17'44	5 51 50'0
2	0 14 43'01	3 45 33'5	122'90	2	1 41 5'98	6 3 51'1
3	0 16 31'62	3 33 16'1	123'00	3	1 42 54'60	6 15 50'9
4	0 18 20'15	3 20 58'1	123'10	4	1 44 43'30	6 27 49'3
5	0 20 8'60	3 8 39'5	123'19	5	1 46 32'08	6 39 46'2
6	0 21 56'98	2 56 20'4	123'27	6	1 48 20'95	6 51 41'7
7	0 23 45'30	2 44 0'7	123'35	7	1 50 9'92	7 3 35'7
8	0 25 33'56	2 31 40'7	123'41	8	1 51 58'97	7 15 28'2
9	0 27 21'75	2 19 20'2	123'47	9	1 53 48'13	7 27 19'0
10	0 29 9'89	2 6 59'3	123'53	10	1 55 37'38	7 39 8'3
11	0 30 57'97	1 54 38'2	123'57	11	1 57 26'74	7 50 55'8
12	0 32 46'01	1 42 16'7	123'61	12	1 59 16'20	8 2 41'6
13	0 34 33'99	1 29 55'1	123'64	13	2 1 5'78	8 14 25'6
14	0 36 21'92	1 17 33'2	123'67	14	2 2 55'47	8 26 7'9
15	0 38 9'82	1 5 11'2	123'69	15	2 4 45'27	8 37 48'2
16	0 39 57'67	0 52 49'1	123'70	16	2 6 35'19	8 49 26'7
17	0 41 45'49	0 40 26'9	123'70	17	2 8 25'24	9 1 3'3
18	0 43 33'28	0 28 4'7	123'70	18	2 10 15'42	9 12 37'9
19	0 45 21'05	0 15 42'5	123'69	19	2 12 5'72	9 24 10'4
20	0 47 8'79	S. 0 3 20'4	123'67	20	2 13 56'16	9 35 41'0
21	0 48 56'50	N. 0 9 1'6	123'65	21	2 15 46'73	9 47 9'4
22	0 50 44'20	0 21 23'5	123'62	22	2 17 37'45	9 58 35'6
23	0 52 31'89	0 33 45'2	123'58	23	2 19 28'30	10 9 59'7
24	0 54 19'56	N. 0 46 6'7		24	2 21 19'30	N. 10 21 21'6

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

ht Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>SUNDAY 21.</i>				<i>TUESDAY 23.</i>		
m s	° ' "	"		h m s	° ' "	"
21 19 30	N. 10 21 21 6	113 27	0	3 53 54 78	N. 18 28 35 8	86 16
23 10 44	10 32 41 2	112 88	1	3 55 56 32	18 37 12 7	85 40
25 1 74	10 43 58 5	112 49	2	3 57 58 13	18 45 45 1	84 63
26 53 19	10 55 13 5	112 09	3	4 0 0 22	18 54 12 9	83 85
28 44 80	11 6 26 0	111 69	4	4 2 2 59	19 2 36 0	83 06
30 36 57	11 17 36 1	111 27	5	4 4 5 23	19 10 54 3	82 26
32 28 51	11 28 43 7	110 85	6	4 6 8 16	19 19 7 9	81 45
34 20 61	11 39 48 8	110 42	7	4 8 11 36	19 27 16 6	80 63
36 12 89	11 50 51 4	109 99	8	4 10 14 85	19 35 20 4	79 81
38 5 33	12 1 51 3	109 54	9	4 12 18 62	19 43 19 2	78 98
39 57 95	12 12 48 5	109 09	10	4 14 22 68	19 51 13 1	78 13
41 50 76	12 23 43 1	108 63	11	4 16 27 03	19 59 1 9	77 28
43 43 74	12 34 34 9	108 17	12	4 18 31 65	20 6 45 6	76 43
45 36 91	12 45 23 9	107 70	13	4 20 36 57	20 14 24 2	75 56
47 30 26	12 56 10 1	107 22	14	4 22 41 78	20 21 57 5	74 68
49 23 80	13 6 53 4	106 73	15	4 24 47 27	20 29 25 6	73 79
51 17 53	13 17 33 8	106 23	16	4 26 53 06	20 36 48 3	72 90
53 11 46	13 28 11 1	105 73	17	4 28 59 14	20 44 5 7	71 99
55 5 59	13 38 45 5	105 22	18	4 31 5 52	20 51 17 7	71 08
56 59 92	13 49 16 8	104 70	19	4 33 12 18	20 58 24 1	70 16
58 54 46	13 59 45 0	104 17	20	4 35 19 14	21 5 25 1	69 22
0 49 21	14 10 10 0	103 63	21	4 37 26 40	21 12 20 4	68 28
2 44 16	14 20 31 8	103 09	22	4 39 33 95	21 19 10 1	67 33
4 39 32	N. 14 30 50 3	102 54	23	4 41 41 79	N. 21 25 54 1	66 37
<i>MONDAY 22.</i>				<i>WEDNESDAY 24.</i>		
6 34 70	N. 14 41 5 5	101 98	0	4 43 49 93	N. 21 32 32 3	65 41
8 30 30	14 51 17 4	101 41	1	4 45 58 37	21 39 4 8	64 43
10 26 12	15 1 25 8	100 84	2	4 48 7 10	21 45 31 3	63 44
12 22 16	15 11 30 9	100 25	3	4 50 16 13	21 51 52 0	62 45
14 18 43	15 21 32 4	99 66	4	4 52 25 46	21 58 6 7	61 44
16 14 92	15 31 30 4	99 07	5	4 54 35 09	22 4 15 3	60 43
18 11 65	15 41 24 8	98 46	6	4 56 45 01	22 10 17 9	59 41
20 8 60	15 51 15 5	97 85	7	4 58 55 23	22 16 14 3	58 38
22 5 80	16 1 2 6	97 23	8	5 1 5 74	22 22 4 6	57 34
24 3 23	16 10 45 9	96 60	9	5 3 16 55	22 27 48 6	56 29
26 0 90	16 20 25 5	95 96	10	5 5 27 66	22 33 26 3	55 23
27 58 81	16 30 1 3	95 31	11	5 7 39 06	22 38 57 7	54 16
29 56 97	16 39 33 1	94 66	12	5 9 50 75	22 44 22 7	53 09
31 55 38	16 49 1 1	94 00	13	5 12 2 74	22 49 41 2	52 00
33 54 03	16 58 25 1	93 33	14	5 14 15 02	22 54 53 2	50 91
35 52 94	17 7 45 1	92 65	15	5 16 27 59	22 59 58 6	49 80
37 52 10	17 17 1 0	91 97	16	5 18 40 46	23 4 57 5	48 69
39 51 51	17 26 12 8	91 27	17	5 20 53 61	23 9 49 6	47 57
41 51 19	17 35 20 5	90 57	18	5 23 7 05	23 14 35 0	46 44
43 51 12	17 44 23 9	89 86	19	5 25 20 78	23 19 13 7	45 30
45 51 32	17 53 23 0	89 13	20	5 27 34 80	23 23 45 5	44 16
47 51 79	18 2 17 8	88 40	21	5 29 49 10	23 28 10 4	43 00
49 52 51	18 11 8 2	87 67	22	5 32 3 69	23 32 28 4	41 84
51 53 51	18 19 54 2	86 92	23	5 34 18 55	23 36 39 4	40 66
53 54 78	N. 18 28 35 8		24	5 36 33 70	N. 23 40 43 4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
THURSDAY 25.				SATURDAY 27.		
0	h m s 5 36 33.70	N. 23 40 43.4	39.48	0	h m s 7 29 16.89	N. 24 22 58.4
1	5 38 49.12	23 44 40.3	38.29	1	7 31 42.06	24 20 24.7
2	5 41 4.83	23 48 30.0	37.09	2	7 34 7.34	24 17 42.2
3	5 43 20.80	23 52 12.6	35.88	3	7 36 32.71	24 14 50.8
4	5 45 37.05	23 55 47.9	34.67	4	7 38 58.17	24 11 50.5
5	5 47 53.57	23 59 15.9	33.44	5	7 41 23.72	24 8 41.3
6	5 50 10.35	24 2 36.5	32.21	6	7 43 49.36	24 5 23.2
7	5 52 27.41	24 5 49.8	30.97	7	7 46 15.07	24 1 56.2
8	5 54 44.72	24 8 55.6	29.72	8	7 48 40.86	23 58 20.3
9	5 57 2.30	24 11 54.0	28.47	9	7 51 6.71	23 54 35.4
10	5 59 20.13	24 14 44.8	27.20	10	7 53 32.63	23 50 41.6
11	6 1 38.23	24 17 28.0	25.93	11	7 55 58.61	23 46 38.8
12	6 3 56.57	24 20 3.6	24.65	12	7 58 24.65	23 42 27.1
13	6 6 15.16	24 22 31.5	23.36	13	8 0 50.74	23 38 6.5
14	6 8 34.01	24 24 51.6	22.07	14	8 3 16.87	23 33 36.9
15	6 10 53.09	24 27 4.0	20.76	15	8 5 43.04	23 28 58.4
16	6 13 12.42	24 29 8.6	19.46	16	8 8 9.25	23 24 11.0
17	6 15 31.99	24 31 5.4	18.14	17	8 10 35.49	23 19 14.6
18	6 17 51.79	24 32 54.2	16.81	18	8 13 1.75	23 14 9.3
19	6 20 11.82	24 34 35.1	15.48	19	8 15 28.04	23 8 55.0
20	6 22 32.09	24 36 8.0	14.15	20	8 17 54.35	23 3 31.9
21	6 24 52.58	24 37 32.9	12.80	21	8 20 20.67	22 57 59.9
22	6 27 13.29	24 38 49.7	11.45	22	8 22 46.99	22 52 18.9
23	6 29 34.22	N. 24 39 58.4	10.09	23	8 25 13.33	N. 22 46 29.1
FRIDAY 26.				SUNDAY 28.		
0	6 31 55.37	N. 24 40 58.9	8.73	0	8 27 39.66	N. 22 40 30.4
1	6 34 16.73	24 41 51.3	7.36	1	8 30 5.99	22 34 22.9
2	6 36 38.29	24 42 35.4	5.98	2	8 32 32.31	22 28 6.5
3	6 39 0.06	24 43 11.3	4.60	3	8 34 58.62	22 21 41.3
4	6 41 22.03	24 43 38.9	3.21	4	8 37 24.91	22 15 7.3
5	6 43 44.19	24 43 58.2	1.81	5	8 39 51.19	22 8 24.5
6	6 46 6.55	24 44 9.1	0.41	6	8 42 17.44	22 1 33.0
7	6 48 29.09	24 44 11.5	0.99	7	8 44 43.66	21 54 32.7
8	6 50 51.82	24 44 5.6	2.41	8	8 47 9.86	21 47 23.8
9	6 53 14.73	24 43 51.1	3.82	9	8 49 36.02	21 40 6.2
10	6 55 37.81	24 43 28.2	5.25	10	8 52 2.13	21 32 39.9
11	6 58 1.07	24 42 56.7	6.67	11	8 54 28.21	21 25 5.0
12	7 0 24.49	24 42 16.7	8.11	12	8 56 54.24	21 17 21.6
13	7 2 48.07	24 41 28.0	9.55	13	8 59 20.22	21 9 29.5
14	7 5 11.81	24 40 30.7	10.99	14	9 1 46.16	21 1 29.0
15	7 7 35.71	24 39 24.8	12.43	15	9 4 12.03	20 53 20.0
16	7 9 59.75	24 38 10.2	13.88	16	9 6 37.85	20 45 2.5
17	7 12 23.94	24 36 46.9	15.34	17	9 9 3.60	20 36 36.7
18	7 14 48.26	24 35 14.9	16.80	18	9 11 29.30	20 28 2.4
19	7 17 12.72	24 33 34.1	18.26	19	9 13 54.92	20 19 19.9
20	7 19 37.31	24 31 44.6	19.72	20	9 16 20.47	20 10 29.0
21	7 22 2.03	24 29 46.2	21.18	21	9 18 45.95	20 1 29.9
22	7 24 26.87	24 27 39.1	22.66	22	9 21 11.36	19 52 22.6
23	7 26 51.82	24 25 23.2	24.13	23	9 23 36.68	19 43 7.2
24	7 29 16.89	N. 24 22 58.4		24	9 26 1.92	N. 19 33 43.6

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 29.				TUESDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 26 1.92	N. 19 33 43.6	95.27	0	10 23 38.57	N. 15 10 12.4	124.51
1	9 28 27.08	19 24 12.0	96.60	1	10 26 1.26	14 57 45.4	125.58
2	9 30 52.15	19 14 32.4	97.93	2	10 28 23.83	14 45 11.9	126.64
3	9 33 17.13	19 4 44.8	99.24	3	10 30 46.30	14 32 32.1	127.68
4	9 35 42.03	18 54 49.4	100.55	4	10 33 8.65	14 19 46.0	128.71
5	9 38 6.83	18 44 46.1	101.85	5	10 35 30.90	14 6 53.7	129.73
6	9 40 31.53	18 34 34.9	103.14	6	10 37 53.03	13 53 55.3	130.73
7	9 42 56.14	18 24 16.1	104.42	7	10 40 15.05	13 40 50.9	131.72
8	9 45 20.65	18 13 49.6	105.69	8	10 42 36.96	13 27 40.6	132.70
9	9 47 45.07	18 3 15.4	106.95	9	10 44 58.77	13 14 24.4	133.66
10	9 50 9.38	17 52 33.7	108.20	10	10 47 20.46	13 1 2.4	134.60
11	9 52 33.59	17 41 44.5	109.44	11	10 49 42.05	12 47 34.8	135.53
12	9 54 57.70	17 30 47.8	110.67	12	10 52 3.53	12 34 1.7	136.45
13	9 57 21.70	17 19 43.8	111.89	13	10 54 24.90	12 20 23.0	137.35
14	9 59 45.60	17 8 32.4	113.10	14	10 56 46.17	12 6 38.9	138.23
15	10 2 9.39	16 57 13.9	114.29	15	10 59 7.34	11 52 49.5	139.10
16	10 4 33.07	16 45 48.1	115.48	16	11 1 28.41	11 38 55.0	139.95
17	10 6 56.64	16 34 15.3	116.65	17	11 3 49.37	11 24 55.3	140.79
18	10 9 20.11	16 22 35.4	117.81	18	11 6 10.23	11 10 50.5	141.61
19	10 11 43.46	16 10 48.5	118.96	19	11 8 31.00	10 56 40.9	142.41
20	10 14 6.70	15 58 54.8	120.09	20	11 10 51.67	10 42 26.4	143.20
21	10 16 29.84	15 46 54.2	121.22	21	11 13 12.24	10 28 7.2	143.97
22	10 18 52.86	15 34 46.9	122.33	22	11 15 32.72	10 13 43.4	144.73
23	10 21 15.77	15 22 33.0	123.42	23	11 17 53.11	9 59 15.1	145.47
24	10 23 38.57	N. 15 10 12.4		24	11 20 13.41	N. 9 44 42.3	

PHASES OF THE MOON.

● New Moon.....	^d ^h ^m
☾ First Quarter.....	3 2 51.0
○ Full Moon.....	9 17 26.0
☾ Last Quarter.....	17 11 18.0
	25 15 6.4

☾ Perigee.....	^d ^h
☾ Apogee.....	4 12
	19 17

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]
1	α Arietis W.	93 26 38	2379	95 10 43	2364	96 55 10	2350	98 39
	Aldebaran W.	62 36 7	2266	64 22 56	2250	66 10 9	2235	67 57
	Jupiter W.	59 17 27	2281	61 3 55	2264	62 50 47	2249	64 38
	Mars W.	49 7 8	2436	50 49 51	2420	52 32 57	2408	54 16
4	Venus E.	- - -	- -	- - -	- -	- - -	- -	- -
5	SUN W.	26 56 55	2403	28 40 25	2400	30 24 0	2399	32 7
	Antares E.	59 11 4	2070	57 19 18	2075	55 27 40	2081	53 36
	α Aquilæ E.	105 15 12	2821	103 41 11	2813	102 7 0	2808	100 32
6	SUN W.	40 44 48	2420	42 27 54	2429	44 10 48	2436	45 53
	Antares E.	44 22 6	2138	42 32 4	2150	40 42 21	2162	38 52
	α Aquilæ E.	92 40 52	2816	91 6 45	2823	89 32 48	2834	87 59
7	SUN W.	54 23 41	2498	56 4 57	2510	57 45 56	2523	59 26
	Venus W.	- - -	- -	- - -	- -	- - -	- -	- -
	α Aquilæ E.	80 14 54	2929	78 43 12	2951	77 11 58	2975	75 41
	Fomalhaut E.	112 34 44	2384	110 50 46	2391	109 6 58	2399	107 23
8	SUN W.	67 45 26	2605	69 24 14	2620	71 2 42	2635	72 40
	Spica η W.	31 50 31	2373	33 34 44	2378	35 18 50	2386	37 2
	Venus W.	24 1 40	2742	25 37 24	2745	27 13 4	2751	28 48
	Fomalhaut E.	98 48 47	2462	97 6 40	2474	95 24 50	2487	93 43
	α Pegasi E.	115 27 20	2782	113 52 29	2782	112 17 37	2784	110 42
9	SUN W.	80 46 22	2726	82 22 27	2741	83 58 12	2757	85 33
	Spica η W.	45 39 8	2444	47 21 40	2455	49 3 56	2467	50 45
	Venus W.	36 43 30	2809	38 17 46	2821	39 51 47	2835	41 25
	Fomalhaut E.	85 20 35	2574	83 41 4	2589	82 1 54	2605	80 23
	α Pegasi E.	102 50 18	2820	101 16 16	2829	99 42 26	2839	98 8
10	SUN W.	93 25 37	2849	94 59 1	2863	96 32 7	2879	98 4
	Spica η W.	59 11 31	2543	60 51 45	2554	62 31 43	2567	64 11
	Venus W.	49 9 56	2913	50 41 58	2927	52 13 43	2941	53 45
	Fomalhaut E.	72 14 44	2708	70 38 14	2725	69 2 7	2744	67 26
	α Pegasi E.	90 24 28	2913	88 52 26	2928	87 20 42	2943	85 49
11	SUN W.	105 44 3	2966	107 14 58	2979	108 45 37	2993	110 15
	Spica η W.	72 25 22	2642	74 3 20	2655	75 41 1	2666	77 18
	Venus W.	61 18 7	3022	62 47 53	3035	64 17 22	3048	65 46
	Antares W.	26 43 32	2720	28 19 45	2722	29 55 56	2726	31 32
	Fomalhaut E.	59 34 16	2863	58 1 10	2884	56 28 31	2908	54 56
	α Pegasi E.	78 17 14	3042	76 47 53	3061	75 18 55	3079	73 50
12	SUN W.	117 43 31	3073	119 12 14	3086	120 40 41	3098	122 8
	Venus W.	73 8 52	3122	74 36 35	3134	76 4 4	3145	77 31
	Antares W.	39 30 40	2763	41 5 57	2770	42 41 4	2778	44 16
	Fomalhaut E.	47 23 20	3064	45 54 26	3095	44 26 10	3128	42 58
	α Pegasi E.	66 33 40	3208	65 7 40	3232	63 42 9	3257	62 17
	α Arietis E.	108 28 28	2845	106 54 59	2854	105 21 41	2863	103 48
13	Venus W.	84 44 12	3211	86 10 8	3221	87 35 52	3231	89 1
	Antares W.	52 8 4	2827	53 41 57	2835	55 15 40	2843	56 49
	α Arietis E.	96 5 53	2916	94 33 55	2925	93 2 8	2935	91 30

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
1	α Arietis W.	100 25 5	2323	102 10 31	2311	103 56 15	2299	105 42 16	2289
	Aldebaran W.	69 45 44	2204	71 34 5	2190	73 22 47	2177	75 11 49	2165
	Jupiter W.	66 25 39	2220	68 13 37	2206	70 1 56	2191	71 50 37	2177
	Mars W.	56 0 19	2373	57 44 33	2358	59 29 8	2344	61 14 3	2329
4	Venus E.	24 41 34	2481	22 59 54	2502	21 18 43	2525	19 38 5	2549
5	SUN W.	33 51 11	2401	35 34 44	2405	37 18 12	2409	39 1 34	2414
	Antares E.	51 44 55	2097	49 53 51	2106	48 3 1	2115	46 12 25	2126
	α Aquilæ E.	98 58 18	2802	97 23 53	2803	95 49 29	2805	94 15 8	2809
6	SUN W.	47 36 2	2455	49 18 19	2465	51 0 22	2476	52 42 9	2487
	Antares E.	37 3 58	2194	35 15 21	2211	33 27 10	2229	31 39 26	2249
	α Aquilæ E.	86 25 36	2859	84 52 24	2874	83 19 32	2890	81 47 1	2909
7	SUN W.	61 7 1	2549	62 47 6	2563	64 26 52	2577	66 6 19	2591
	Venus W.	17 39 39	2769	19 14 48	2754	20 50 16	2746	22 25 55	2741
	α Aquilæ E.	74 11 1	3027	72 41 22	3057	71 12 20	3088	69 43 56	3121
	Fomalhaut E.	105 39 58	2417	103 56 47	2427	102 13 51	2438	100 31 11	2450
8	SUN W.	74 18 37	2665	75 56 4	2681	77 33 10	2696	79 9 56	2711
	Spica ♀ W.	38 46 28	2402	40 30 0	2412	42 13 18	2422	43 56 21	2434
	Venus W.	30 24 0	2766	31 59 13	2776	33 34 13	2786	35 8 59	2798
	Fomalhaut E.	92 2 7	2515	90 21 14	2528	88 40 40	2543	87 0 27	2559
	α Pegasi E.	109 8 4	2792	107 33 25	2798	105 58 54	2804	104 24 31	2811
9	SUN W.	87 8 41	2788	88 43 25	2803	90 17 49	2818	91 51 53	2834
	Spica ♀ W.	52 27 37	2492	54 9 1	2504	55 50 9	2517	57 30 58	2529
	Venus W.	42 58 57	2860	44 32 7	2873	46 5 1	2887	47 37 37	2900
	Fomalhaut E.	78 44 40	2638	77 6 36	2655	75 28 56	2672	73 51 38	2690
	α Pegasi E.	96 35 26	2861	95 2 17	2874	93 29 25	2886	91 56 48	2899
10	SUN W.	99 37 20	2909	101 9 28	2923	102 41 18	2938	104 12 49	2951
	Spica ♀ W.	65 50 45	2593	67 29 50	2605	69 8 38	2618	70 47 8	2630
	Venus W.	55 16 19	2969	56 47 11	2982	58 17 46	2995	59 48 5	3009
	Fomalhaut E.	65 51 8	2782	64 16 16	2801	62 41 49	2821	61 7 49	2842
	α Pegasi E.	84 18 11	2974	82 47 26	2989	81 17 0	3007	79 46 56	3025
11	SUN W.	111 46 2	3022	113 15 48	3034	114 45 19	3047	116 14 33	3060
	Spica ♀ W.	78 55 35	2690	80 32 29	2702	82 9 6	2714	83 45 28	2726
	Venus W.	67 15 34	3073	68 44 17	3086	70 12 44	3099	71 40 55	3110
	Antares W.	33 8 0	2735	34 43 53	2741	36 19 38	2748	37 55 14	2756
	Fomalhaut E.	53 24 42	2954	51 53 32	2981	50 22 55	3006	48 52 50	3034
	α Pegasi E.	72 22 9	3119	70 54 23	3141	69 27 3	3162	68 0 8	3184
12	SUN W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Venus W.	78 58 20	3168	80 25 8	3179	81 51 42	3190	83 18 3	3200
	Antares W.	45 50 47	2795	47 25 22	2802	48 59 47	2811	50 34 1	2819
	Fomalhaut E.	41 31 40	3201	40 5 32	3242	38 40 13	3287	37 15 46	3336
	α Pegasi E.	60 52 36	3312	59 28 38	3340	58 5 13	3371	56 42 23	3404
	α Arietis E.	102 15 39	2981	100 42 56	2889	99 10 23	2899	97 38 3	2907
13	Venus W.	90 26 45	3250	91 51 55	3260	93 16 53	3270	94 41 40	3278
	Antares W.	58 22 34	2859	59 55 46	2866	61 28 48	2874	63 1 40	2882
	α Arietis E.	89 59 9	2952	88 27 56	2961	86 56 54	2970	85 26 3	2979

MEAN TIME.										
LUNAR DISTANCES.										
Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.	XII ^h .
14	Venus W.	56 6 17 3255		97 30 43 3290		98 54 59 3306		100 19 4 3322		101 43 19 3338
	Antares W.	64 34 22 2259		66 6 55 2257		67 39 18 2904		69 11 32 2920		70 24 45 2936
	♌ Arietis E.	83 55 24 2958		82 24 56 2996		80 54 38 3005		79 24 32 3011		78 54 26 3017
	Aldebaran E.	114 40 46 2870		113 7 56 2884		111 35 16 2891		110 2 45 2898		108 50 18 2905
	Jupiter E.	118 55 19 2881		117 22 35 2888		115 50 1 2895		114 17 36 2902		112 45 9 2909
15	Venus W.	107 17 8 3354		108 40 17 3361		110 3 18 3369		111 26 10 3376		112 49 22 3383
	Antares W.	76 50 28 2945		78 21 50 2952		79 53 3 2959		81 24 9 2966		82 55 21 2973
	♌ Arietis E.	71 56 49 3000		70 27 51 3009		68 59 4 3078		67 30 28 3088		66 1 47 3098
	Aldebaran E.	102 22 33 2933		100 50 56 2941		99 19 29 2946		97 48 9 2954		96 17 18 2962
	Jupiter E.	106 37 58 2939		105 6 29 2946		103 35 8 2952		102 3 55 2959		100 32 4 3006
	Mars E.	- - - -		- - - -		120 51 27 3133		119 23 57 3140		117 55 8 3147
16	♌ Aquilæ W.	49 28 52 4413		50 34 2 4350		51 40 3 4305		52 46 51 4259		53 52 58 4213
	♌ Arietis E.	60 10 30 3139		58 43 8 3150		57 15 59 3162		55 49 4 3170		54 19 10 3178
	Aldebaran E.	90 13 29 2984		88 42 56 2993		87 12 29 2994		85 42 9 3000		84 12 18 3006
	Jupiter E.	94 29 48 2988		92 59 20 2993		91 28 59 2999		89 58 45 3005		88 28 30 3011
	Mars E.	112 8 26 3171		110 41 42 3177		109 15 5 3182		107 48 34 3187		106 17 43 3193
17	♌ Aquilæ W.	58 30 45 4076		59 41 10 4048		60 52 2 4023		62 3 19 4000		63 14 26 3977
	♌ Arietis E.	48 38 15 3241		47 12 55 3257		45 47 53 3275		44 23 12 3293		42 58 21 3311
	Aldebaran E.	78 12 9 3025		76 42 27 3030		75 12 52 3035		73 43 22 3039		72 13 31 3043
	Jupiter E.	82 29 10 3028		80 59 32 3033		79 30 0 3037		78 0 33 3042		76 30 46 3046
	Mars E.	100 37 33 3218		99 11 39 3217		97 45 50 3221		96 20 6 3226		94 45 13 3231
18	♌ Aquilæ W.	68 4 52 3911		69 18 1 3857		70 31 24 3888		71 44 59 3874		72 58 12 3860
	Fomalhaut W.	- - - -		- - - -		- - - -		- - - -		- - - -
	Aldebaran E.	66 17 11 3060		64 48 12 3063		63 19 17 3067		61 50 27 3070		60 21 37 3073
	Jupiter E.	70 34 33 3060		69 5 34 3063		67 36 39 3066		66 7 48 3069		64 38 57 3072
	Mars E.	89 12 38 3244		87 47 21 3248		86 22 9 3252		84 57 1 3254		83 27 10 3257
	Pollux E.	110 26 12 3059		108 57 12 3061		107 28 15 3064		105 59 22 3068		104 30 29 3071
19	♌ Aquilæ W.	77 55 22 3833		79 9 50 3828		80 24 23 3823		81 39 1 3819		82 53 44 3815
	Fomalhaut W.	43 16 4 3461		44 37 12 3443		45 58 40 3426		47 20 27 3410		48 41 14 3394
	Aldebaran E.	54 27 17 3090		52 58 50 3093		51 30 27 3091		50 2 6 3093		48 33 10 3095
	Jupiter E.	58 44 20 3081		57 15 47 3083		55 47 17 3085		54 18 49 3086		52 50 1 3088
	Mars E.	77 52 8 3266		76 27 17 3269		75 2 29 3270		73 37 42 3271		72 7 54 3272
	Pollux E.	98 35 46 3072		97 7 11 3071		95 38 38 3073		94 10 8 3074		92 41 17 3076
20	♌ Aquilæ W.	87 53 1 3809		89 7 54 3808		90 22 48 3809		91 37 41 3810		92 51 34 3811
	Fomalhaut W.	54 13 13 3352		55 36 24 3342		56 59 47 3334		58 23 19 3326		59 46 10 3318
	Aldebaran E.	42 41 5 3104		41 13 0 3136		39 44 58 3107		38 16 57 3109		36 48 49 3111
	Jupiter E.	40 56 43 3089		43 28 20 3089		43 59 57 3089		42 31 34 3089		41 3 11 3089
	Mars E.	66 34 10 3272		65 9 30 3273		63 44 49 3279		62 20 9 3274		60 51 2 3274
	Pollux E.	80 47 57 3088		83 19 33 3088		83 51 10 3088		82 22 46 3089		80 53 33 3089
21	Fomalhaut W.	65 23 19 3288		66 47 45 3281		68 12 19 3275		69 37 0 3268		70 61 41 3261
	Jupiter E.	33 9 24 3083		33 40 53 3083		32 12 19 3077		30 43 41 3074		29 14 33 3071
	Mars E.	55 16 29 3268		53 51 40 3265		52 26 48 3263		51 1 53 3259		49 27 46 3256
	Pollux E.	75 0 39 3083		73 32 9 3081		72 3 36 3079		70 35 1 3077		68 47 10 3074
	Regulus E.	111 1 49 3083		109 33 19 3082		108 4 47 3079		106 36 12 3076		104 48 21 3073
22	Fomalhaut W.	76 42 24 3233		78 7 52 3227		79 33 29 3221		80 59 13 3215		82 14 26 3209
	♌ Pegasi W.	60 18 32 3590		61 37 11 3577		62 56 11 3557		64 15 32 3539		65 34 53 3521

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
4	Venus W.	101 43 0	3322	103 6 46	3331	104 30 22	3338	105 53 50	3346
	Antares W.	70 43 37	2919	72 15 32	2925	73 47 19	2931	75 18 58	2938
	α Arietis E.	77 54 37	3024	76 24 54	3032	74 55 21	3042	73 26 0	3050
	Aldebaran E.	108 30 25	2905	106 58 13	2913	105 26 11	2920	103 54 17	2928
	Jupiter E.	112 45 22	2911	111 13 17	2918	109 41 21	2926	108 9 35	2933
5	Venus W.	112 48 54	3384	114 11 29	3391	115 33 56	3398	116 56 15	3405
	Antares W.	82 55 6	2970	84 25 56	2976	85 56 39	2982	87 27 14	2988
	α Arietis E.	66 2 4	3098	64 33 52	3108	63 5 52	3119	61 38 5	3129
	Aldebaran E.	96 16 58	2959	94 45 54	2966	93 14 58	2972	91 44 10	2978
	Jupiter E.	100 32 51	2965	99 1 54	2971	97 31 5	2977	96 0 23	2982
	Mars E.	117 56 36	3147	116 29 23	3153	115 2 17	3158	113 35 18	3164
16	α Aquilæ W.	53 54 23	4214	55 2 36	4176	56 11 25	4138	57 20 50	4107
	α Arietis E.	54 22 24	3186	52 55 58	3199	51 29 48	3212	50 3 53	3226
	Aldebaran E.	84 11 56	3006	82 41 50	3010	81 11 50	3015	79 41 56	3021
	Jupiter E.	88 28 38	3010	86 58 37	3014	85 28 42	3019	83 58 53	3024
	Mars E.	106 22 9	3193	104 55 51	3198	103 29 39	3203	102 3 33	3208
17	α Aquilæ W.	63 14 59	3979	64 26 59	3958	65 39 20	3941	66 51 58	3925
	α Arietis E.	42 58 51	3311	41 34 52	3332	40 11 18	3355	38 48 10	3379
	Aldebaran E.	72 13 57	3043	70 44 38	3048	69 15 24	3052	67 46 15	3056
	Jupiter E.	76 31 12	3045	75 1 55	3049	73 32 43	3053	72 3 36	3056
	Mars E.	94 54 27	3230	93 28 53	3233	92 3 23	3237	90 37 58	3242
18	α Aquilæ W.	72 58 45	3864	74 12 41	3855	75 26 47	3847	76 41 1	3840
	Fomalhaut W.	37 55 45	3557	39 15 6	3528	40 34 59	3504	41 55 19	3481
	Aldebaran E.	60 21 41	3074	58 52 59	3078	57 24 22	3080	55 55 48	3083
	Jupiter E.	64 39 0	3072	63 10 16	3074	61 41 35	3076	60 12 56	3078
	Mars E.	83 31 56	3258	82 6 55	3259	80 41 56	3263	79 17 1	3265
	Pollux E.	104 30 33	3070	103 1 47	3073	101 33 4	3075	100 4 24	3077
19	α Aquilæ W.	82 53 44	3817	84 8 29	3813	85 23 18	3811	86 38 9	3810
	Fomalhaut W.	48 42 32	3398	50 4 51	3384	51 27 26	3373	52 50 13	3362
	Aldebaran E.	48 33 48	3096	47 5 34	3098	45 37 22	3100	44 9 12	3102
	Jupiter E.	52 50 22	3087	51 21 56	3087	49 53 31	3088	48 25 7	3088
	Mars E.	72 12 57	3273	70 48 14	3274	69 23 32	3275	67 58 51	3275
	Pollux E.	92 41 39	3085	91 13 11	3087	89 44 46	3087	88 16 21	3088
20	α Aquilæ W.	92 52 33	3811	94 7 24	3813	95 22 13	3816	96 36 59	3819
	Fomalhaut W.	59 47 1	3317	61 10 53	3310	62 34 53	3302	63 59 2	3295
	Aldebaran E.	36 48 59	3111	35 21 3	3113	33 53 9	3115	32 25 17	3117
	Jupiter E.	41 3 11	3088	39 34 47	3087	38 6 21	3085	36 37 53	3084
	Mars E.	60 55 27	3274	59 30 45	3273	58 6 2	3271	56 41 16	3270
	Pollux E.	80 54 23	3087	79 25 58	3087	77 57 33	3087	76 29 7	3085
21	Fomalhaut W.	71 1 49	3261	72 26 46	3254	73 51 51	3247	75 17 4	3241
	Jupiter E.	29 15 0	3071	27 46 15	3068	26 17 26	3065	24 48 33	3060
	Mars E.	49 36 54	3257	48 11 52	3253	46 46 45	3249	45 21 34	3245
	Pollux E.	69 6 23	3074	67 37 42	3071	66 8 57	3068	64 40 8	3064
	Regulus E.	105 7 33	3073	103 38 50	3069	102 10 3	3066	100 41 12	3061
22	Fomalhaut W.	82 25 5	3207	83 51 6	3200	85 17 15	3193	86 43 33	3185
	α Pegasi W.	65 35 13	3522	66 55 13	3504	68 15 33	3488	69 36 10	3472

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
22	Jupiter	E.	23 19 34	3055	21 50 29	3051	20 21 19	3046	18 52 3
	Mars	E.	43 56 18	3240	42 30 56	3236	41 5 29	3230	39 39 55
	Pollux	E.	63 11 14	3061	61 42 16	3056	60 13 12	3052	58 44 3
	Regulus	E.	99 12 15	3057	97 43 13	3053	96 14 6	3048	94 44 52
23	α Pegasi	W.	70 57 6	3456	72 18 19	3441	73 39 49	3426	75 1 36
	Mars	E.	32 30 16	3189	31 3 54	3182	29 37 23	3173	28 10 42
	Pollux	E.	51 16 39	3017	49 46 47	3010	48 16 47	3003	46 46 38
	Regulus	E.	87 16 53	3010	85 46 52	3002	84 16 41	2994	82 46 21
	SUN	E.	119 40 55	3390	118 18 27	3381	116 55 49	3372	115 33 0
24	α Pegasi	W.	81 54 35	3342	83 17 58	3329	84 41 36	3315	86 5 36
	α Arietis	W.	38 19 53	3249	39 45 4	3219	41 10 51	3188	42 37 14
	Pollux	E.	39 13 30	2955	37 42 21	2947	36 11 2	2938	34 39 31
	Regulus	E.	75 11 54	2939	73 40 24	2928	72 8 40	2917	70 36 43
	SUN	E.	108 36 3	3309	107 12 2	3296	105 47 46	3284	104 23 16
25	α Pegasi	W.	93 8 44	3240	94 34 6	3227	95 59 43	3215	97 25 34
	α Arietis	W.	49 57 1	3038	51 26 27	3015	52 56 21	2992	54 26 44
	Jupiter	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux	E.	26 59 10	2887	25 26 35	2880	23 53 51	2876	22 21 1
	Regulus	E.	62 53 9	2844	61 19 38	2830	59 45 49	2816	58 11 42
	SUN	E.	97 16 51	3201	95 50 43	3186	94 24 17	3171	92 57 33
26	α Arietis	W.	62 5 23	2864	63 38 28	2844	65 11 59	2822	66 45 58
	Aldebaran	W.	30 31 34	2753	32 7 3	2733	33 42 59	2714	35 19 21
	Jupiter	W.	25 40 22	2713	27 16 45	2696	28 53 30	2680	30 30 37
	Regulus	E.	50 16 28	2728	48 40 25	2713	47 4 2	2698	45 27 19
	SUN	E.	85 38 58	3070	84 10 12	3053	82 41 5	3035	81 11 35
27	α Arietis	W.	74 42 32	2700	76 19 12	2681	77 56 18	2660	79 33 52
	Aldebaran	W.	43 27 54	2595	45 6 56	2575	46 46 26	2555	48 26 23
	Jupiter	W.	38 42 11	2573	40 21 43	2554	42 1 41	2535	43 42 5
	Mars	W.	- - -	- - -	- - -	- - -	18 53 9	2699	20 29 51
	Regulus	E.	37 18 20	2602	35 39 28	2586	34 0 14	2572	32 20 40
	SUN	E.	73 38 19	2921	72 6 27	2902	70 34 11	2883	69 1 30
28	α Arietis	W.	87 48 24	2543	89 28 38	2523	91 9 19	2505	92 50 25
	Aldebaran	W.	56 53 0	2437	58 35 42	2418	60 18 51	2398	62 2 29
	Jupiter	W.	52 10 38	2422	53 53 41	2403	55 37 11	2384	57 21 8
	Mars	W.	28 39 46	2581	30 19 7	2561	31 58 56	2541	33 39 12
	SUN	E.	61 11 41	2764	59 36 26	2744	58 0 45	2725	56 24 38
29	Aldebaran	W.	70 47 28	2285	72 33 49	2268	74 20 36	2249	76 7 50
	Jupiter	W.	66 7 43	2273	67 54 22	2255	69 41 28	2237	71 29 0
	Mars	W.	42 7 25	2424	43 50 25	2405	45 33 52	2387	47 17 45
	Pollux	W.	26 44 58	2324	28 30 22	2301	30 16 20	2279	32 2 51
	SUN	E.	48 17 41	2612	46 39 2	2595	45 0 0	2578	43 20 35
30	Aldebaran	W.	85 10 18	2151	87 0 0	2136	88 50 4	2122	90 40 30
	Jupiter	W.	80 32 59	2138	82 23 0	2124	84 13 23	2109	86 4 8
	Mars	W.	56 3 31	2285	57 49 53	2269	59 36 38	2254	61 23 45
	Pollux	W.	41 2 51	2164	42 52 13	2147	44 42 0	2131	46 32 12
	SUN	E.	34 58 4	2490	33 16 37	2478	31 34 53	2469	29 52 56

MEAN TIME.
LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		o i "		o i "		o i "		o i "	
22	Jupiter E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Mars E.	38 14 15	3218	36 48 27	3211	35 22 31	3205	33 56 28	3198
	Pollux E.	57 14 48	3041	55 45 26	3036	54 15 58	3030	52 46 22	3024
	Regulus E.	93 15 31	3036	91 46 3	3031	90 16 28	3024	88 46 45	3017
23	α Pegasi W.	76 23 40	3397	77 46 0	3384	79 8 35	3369	80 31 27	3355
	Mars E.	26 43 51	3156	25 16 49	3147	23 49 36	3137	22 22 11	3126
	Pollux E.	45 16 20	2989	43 45 53	2981	42 15 16	2972	40 44 28	2964
	Regulus E.	81 15 50	2977	79 45 9	2968	78 14 16	2958	76 43 11	2949
	SUN E.	114 10 1	3352	112 46 50	3342	111 23 27	3331	109 59 52	3319
24	α Pegasi W.	87 29 39	3289	88 54 3	3277	90 18 42	3264	91 43 35	3251
	α Arietis W.	44 4 9	3135	45 31 36	3109	46 59 35	3085	48 28 3	3062
	Pollux E.	33 7 49	2920	31 35 56	2912	30 3 52	2902	28 31 36	2894
	Regulus E.	69 4 31	2894	67 32 4	2882	65 59 22	2870	64 26 24	2856
	SUN E.	102 58 31	3258	101 33 30	3245	100 8 14	3231	98 42 41	3216
25	α Pegasi W.	98 51 39	3193	100 17 57	3182	101 44 28	3172	103 11 11	3160
	α Arietis W.	55 57 33	2949	57 28 50	2928	59 0 34	2906	60 32 45	2885
	Jupiter W.	19 18 24	2777	20 53 22	2761	22 28 41	2745	24 4 21	2729
	Pollux E.	20 48 5	2869	19 15 7	2871	17 42 11	2877	16 9 23	2892
	Regulus E.	56 37 18	2788	55 2 34	2774	53 27 32	2758	51 52 9	2744
	SUN E.	91 30 30	3138	90 3 7	3123	88 35 25	3105	87 7 22	3088
26	α Arietis W.	68 20 23	2782	69 55 15	2761	71 30 34	2741	73 6 19	2720
	Aldebaran W.	36 56 10	2673	38 33 26	2654	40 11 8	2633	41 49 18	2614
	Jupiter W.	32 8 8	2645	33 46 2	2627	35 24 21	2609	37 3 4	2591
	Regulus E.	43 50 14	2666	42 12 48	2649	40 35 0	2634	38 56 51	2618
	SUN E.	79 41 43	2998	78 11 27	2979	76 40 48	2961	75 9 46	2941
27	α Arietis W.	81 11 53	2621	82 50 20	2600	84 29 15	2581	86 8 36	2561
	Aldebaran W.	50 6 48	2516	51 47 39	2495	53 28 59	2477	55 10 45	2456
	Jupiter W.	45 22 54	2498	47 4 10	2479	48 45 53	2460	50 28 2	2441
	Mars W.	22 6 57	2661	23 44 29	2642	25 22 27	2621	27 0 53	2601
	Regulus E.	30 40 45	2543	29 0 32	2529	27 19 59	2515	25 39 7	2504
	SUN E.	67 28 23	2843	65 54 51	2824	64 20 54	2803	62 46 30	2784
28	α Arietis W.	94 31 58	2468	96 13 56	2450	97 56 19	2433	99 39 6	2416
	Aldebaran W.	63 46 34	2360	65 31 6	2341	67 16 6	2322	69 1 33	2303
	Jupiter W.	59 5 33	2346	60 50 25	2328	62 35 44	2309	64 21 30	2291
	Mars W.	35 19 56	2502	37 1 7	2482	38 42 46	2462	40 24 52	2443
	SUN E.	54 48 6	2686	53 11 7	2667	51 33 43	2649	49 55 54	2631
29	Aldebaran W.	77 55 30	2215	79 43 35	2198	81 32 5	2182	83 21 0	2167
	Jupiter W.	73 16 58	2202	75 5 22	2186	76 54 10	2170	78 43 23	2155
	Mars W.	49 2 4	2352	50 46 48	2334	52 31 58	2317	54 17 32	2300
	Pollux W.	33 49 52	2237	35 37 24	2217	37 25 26	2199	39 13 55	2181
	SUN E.	41 40 47	2545	40 0 36	2530	38 20 5	2516	36 39 14	2502
30	Aldebaran W.	92 31 18	2095	94 22 25	2082	96 13 52	2070	98 5 38	2059
	Jupiter W.	87 55 14	2082	89 46 41	2069	91 38 28	2057	93 30 34	2045
	Mars W.	63 11 14	2225	64 59 4	2212	66 47 13	2199	68 35 42	2187
	Pollux W.	48 22 46	2102	50 13 43	2088	52 5 1	2075	53 56 39	2063
	SUN E.	28 10 46	2453	26 28 27	2449	24 46 2	2448	23 3 36	2450

CONFIGURATIONS OF THE SATELLITES OF JUPITER

At 13^h 30^m, MEAN TIME.

Days of the Month.	Apparent West.	Apparent East.
1	4. 2. 1. ○	3.
2	4. ○	2. 1. 3.
3	4. 1. ○	3. 2.
4	4. 2. 3. ○	1.
5	3. 4. 2. 1. ○	
6	3. 4. ○	1. 2.
7	1. 3. 4. ○	2. 4.
8	1. ○	2. 3. 4.
9		2. 1. 3. 4.
10		1. 2. 3. 4.
11		2. 3. ○
12		3. 2. 1. ○
13		3. 1. 2. 4.
14		3. 1. ○
15	○ 1.	2. 4. ○
16	2. 4.	○ 1. 3.
17	4. 1. ○	2. 3.
18	4. 2. ○	1.
19	4. 3. 2. 1. ○	
20	4. 3. ○	1. 2.
21	4. 3. 1. ○	2.
22	4. 2. 1. ○	3.
23	1. ○	3.
24		1. ○
25		2. 3. 1. 4.
26	3. 2. 1. ○	4.
27	3. ○	1. 2.
28	3. 1. ○	2. 4.
29	2. ○	3. 1. 4.
30	1. ○	2. 4. 3.

This Table represents, at 13^h 30^m after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	2	^h 5 ^m 11 ^s 1.0	^h 15 ^m 56 ^s 29.1	Im.
	3	23 39 23.3	10 31 50.1	Im.
	5	18 7 44.4	5 7 9.8	Im.
	7*	12 36 6.8	23 42 30.7	Im.
	9	7 4 28.1	18 17 50.7	Im.
	11	1 32 50.0	12 53 11.2	Im.
	12	20 1 12.9	7 28 32.7	Im.
	14*	14 29 33.5	2 3 52.0	Im.
	16	8 57 57.1	20 39 14.2	Im.
	18	3 26 18.3	15 14 34.0	Im.
	19	21 54 40.7	9 49 55.1	Im.
	21*	16 23 2.3	4 25 15.3	Im.
	23*	10 51 25.4	23 0 37.0	Im.
	25	5 19 46.6	17 35 56.9	Im.
	26	23 48 10.4	12 11 19.2	Im.
	28	18 16 31.7	6 46 39.2	Im.
	30*	12 44 55.7	1 22 1.8	Im.
II.	2	4 50 23.5	15 35 48.2	Im.
	2	7 8 27.5	17 54 14.9	Em.
	5	18 9 29.8	5 8 55.5	Im.
	5	20 27 37.8	7 27 26.1	Em.
	9	7 27 29.1	18 40 55.5	Im.
	9	9 45 40.7	20 59 29.8	Em.
	12	20 46 35.3	8 14 2.6	Im.
	12	23 4 51.4	10 32 41.4	Em.
	16*	10 4 34.3	21 46 2.3	Im.
	16*	12 22 55.8	0 4 46.6	Em.
	19	23 23 39.9	11 19 8.8	Im.
	20	1 42 4.6	13 37 56.3	Em.
	23*	12 41 38.9	0 51 8.7	Im.
	23*	15 0 9.2	3 10 1.6	Em.
	27	2 0 41.3	14 24 11.9	Im.
	27	4 19 16.6	16 43 10.0	Em.
	30*	15 18 42.2	3 56 13.6	Im.
	30*	17 37 21.6	6 15 15.8	Em.
III.	7*	13 29 17.2	0 35 49.9	Im.
	7*	15 43 38.9	2 50 33.7	Em.
	14	17 28 27.2	5 3 15.1	Im.
	14	19 43 24.5	7 18 34.6	Em.
	21	21 27 33.6	9 30 36.6	Im.
	21	23 43 9.7	11 46 35.0	Em.
	29	1 26 49.7	13 58 7.9	Im.
	29	3 43 1.5	16 14 42.1	Em.

i
*i
*i
* e
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APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
Satellite.	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
	d h m	d h m	d h m	d h m	d h m	d h m
I.		2 19 30	1 19 57	1* 22 13	1 18 39	1 20 46
		4 14 6	3 14 32	3 16 48	3 13 14	3 15 22
		5 8 41	4 9 8	5 11 23	4 7 49	4 9 57
		7* 3 16	6* 3 43	6 5 59	6* 2 25	6 4 33
		9* 21 51	8* 22 18	8* 0 34	8 21 1	8* 23 8
	In	11 16 26	10 16 53	10 19 9	10 15 36	10 17 44
		12 11 1	12 11 28	12 13 44	11 10 11	12 12 19
		14 5 36	13 6 3	13 8 19	13 4 47	13 6 55
	the	16* 0 11	15* 0 38	15* 2 54	15* 23 23	15* 1 30
		18 18 46	17 19 13	17 21 28	17 17 58	17 20 6
		20 13 21	19 13 47	19 16 3	19 12 33	19 14 41
	Shadow.	21 7 55	20 8 22	20 10 38	20 7 9	20 9 17
		23* 2 30	22* 2 57	22* 5 12	22* 1 45	22* 3 53
		25 21 4	24 21 31	24* 23 47	24 20 20	24* 22 28
		27 15 38	26 16 6	26 18 21	26 14 56	26 17 4
		28 10 13	27 10 40	28 12 56	27 9 31	27 11 39
		30* 4 47	29* 5 14	29 7 30	29* 4 7	29 6 15
II.	2 18 12	2 20 48	4 12 59	4 15 34	3 10 22	4 12 41
	5 7 45	5 10 21	7* 2 31	7 5 6	7* 23 53	7* 2 11
	9 21 16	9* 23 52	11 16 2	11 18 38	11 13 24	11 15 43
	12 10 48	13 13 24	14 5 33	14 8 9	14* 2 54	14 5 13
	16* 0 18	16* 2 54	18 19 3	18* 21 39	18 16 26	18 18 45
	20 13 49	20 16 24	21 8 33	21 11 9	21 5 57	21 8 15
	23* 3 18	23 5 53	25* 22 3	25* 0 38	25 19 28	25* 21 47
	27 16 47	27 19 22	28 11 31	29 14 6	28 8 59	28 11 18
	30* 6 15	30 8 50				
III.	7 6 8	7 8 21	4 15 55	4 18 7	3 10 13	4 12 28
	14 10 30	15 12 43	11 20 19	11* 22 32	11 14 42	11 16 57
	22 14 48	22 16 59	18* 0 39	18* 2 51	18 19 10	18 21 26
	29 19 1	29 21 11	25* 4 55	25 7 5	25* 23 38	25* 1 55

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .505048. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	+1.2415	-0.8631	+9.5347	-0.2205	13 17 8.61	162	243	.665
2	1.2442	0.8434	9.5374	0.2259	13 13 12.70	163	244	.668
3	1.2468	0.8227	9.5401	0.2310	13 9 16.79	164	245	.671
4	+1.2493	-0.8008	+9.5428	-0.2360	13 5 20.88	165	246	.674
5	1.2516	0.7776	9.5454	0.2408	13 1 24.98	166	247	.676
6	1.2538	0.7529	9.5480	0.2454	12 57 29.07	167	248	.679
7	+1.2559	-0.7266	+9.5505	-0.2498	12 53 33.16	168	249	.682
8	1.2578	0.6985	9.5530	0.2541	12 49 37.25	169	250	.684
9	1.2596	0.6683	9.5555	0.2582	12 45 41.35	170	251	.687
10	+1.2613	-0.6356	+9.5579	-0.2621	12 41 45.44	171	252	.690
11	1.2628	0.6002	9.5603	0.2658	12 37 49.53	172	253	.693
12	1.2642	0.5614	9.5627	0.2694	12 33 53.62	173	254	.695
13	+1.2655	-0.5187	+9.5650	-0.2728	12 29 57.72	174	255	.698
14	1.2667	0.4711	9.5673	0.2760	12 26 1.81	175	256	.701
15	1.2677	0.4175	9.5697	0.2791	12 22 5.90	176	257	.704
16	+1.2686	-0.3562	+9.5720	-0.2820	12 18 10.00	177	258	.706
17	1.2693	0.2846	9.5742	0.2848	12 14 14.09	178	259	.709
18	1.2700	0.1986	9.5765	0.2874	12 10 18.18	179	260	.712
19	+1.2705	-0.0910	+9.5787	-0.2899	12 6 22.28	180	261	.715
20	1.2709	9.9475	9.5809	0.2922	12 2 26.37	181	262	.717
21	1.2711	9.7311	9.5831	0.2943	11 58 30.46	182	263	.720
22	+1.2713	-9.2797	+9.5853	-0.2963	11 54 34.55	183	264	.723
23	1.2713	+9.1982	9.5875	0.2982	11 50 38.65	184	265	.726
24	1.2712	9.7044	9.5897	0.2999	11 46 42.74	185	266	.728
25	+1.2709	+9.9319	+9.5918	-0.3014	11 42 46.83	186	267	.731
26	1.2705	0.0804	9.5940	0.3028	11 38 50.93	187	268	.734
27	1.2700	0.1908	9.5962	0.3041	11 34 55.02	188	269	.737
28	+1.2694	+0.2787	+9.5983	-0.3052	11 30 59.11	189	270	.739
29	1.2686	0.3517	9.6005	0.3062	11 27 3.20	190	271	.742
30	1.2677	0.4142	9.6026	0.3070	11 23 7.30	191	272	.745
31	+1.2667	+0.4686	+9.6047	-0.3078	11 19 11.39	192	273	.747

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s
Wed.	1	12 28 40.77	9.067	S. 3 6 2.0	58.31	1 4.29	10 14.58
Thur.	2	12 32 18.38	9.080	3 29 21.5	58.22	1 4.34	10 33.47
Frid.	3	12 35 56.30	9.093	3 52 38.8	58.10	1 4.39	10 52.05
Sat.	4	12 39 34.53	9.109	4 15 53.3	57.98	1 4.43	11 10.33
Sun.	5	12 43 13.14	9.122	4 39 4.9	57.83	1 4.49	11 28.23
Mon.	6	12 46 52.07	9.135	5 2 12.9	57.68	1 4.55	11 45.80
Tues.	7	12 50 31.38	9.154	5 25 17.1	57.50	1 4.61	12 3.00
Wed.	8	12 54 11.09	9.173	5 48 17.0	57.31	1 4.67	12 19.79
Thur.	9	12 57 51.23	9.190	6 11 12.5	57.10	1 4.73	12 36.16
Frid.	10	13 1 31.78	9.208	6 34 2.8	56.88	1 4.80	12 52.13
Sat.	11	13 5 12.77	9.223	6 56 47.8	56.64	1 4.87	13 7.64
Sun.	12	13 8 54.25	9.248	7 19 27.1	56.38	1 4.94	13 22.67
Mon.	13	13 12 36.21	9.269	7 42 0.3	56.11	1 5.01	13 37.23
Tues.	14	13 16 18.67	9.292	8 4 27.0	55.83	1 5.09	13 51.29
Wed.	15	13 20 1.67	9.315	8 26 46.8	55.53	1 5.17	14 4.80
Thur.	16	13 23 45.22	9.338	8 48 59.5	55.21	1 5.26	14 17.77
Frid.	17	13 27 29.33	9.363	9 11 4.6	54.88	1 5.34	14 30.18
Sat.	18	13 31 14.04	9.389	9 33 1.8	54.53	1 5.43	14 41.98
Sun.	19	13 34 59.37	9.415	9 54 50.6	54.17	1 5.52	14 53.19
Mon.	20	13 38 45.32	9.444	10 16 30.7	53.80	1 5.61	15 3.75
Tues.	21	13 42 31.94	9.470	10 38 2.0	53.40	1 5.71	15 13.67
Wed.	22	13 46 19.21	9.499	10 59 23.7	53.00	1 5.80	15 22.92
Thur.	23	13 50 7.18	9.528	11 20 35.6	52.58	1 5.90	15 31.48
Frid.	24	13 53 55.85	9.558	11 41 37.5	52.13	1 6.00	15 39.35
Sat.	25	13 57 45.24	9.589	12 2 28.7	51.68	1 6.11	15 46.49
Sun.	26	14 1 35.38	9.619	12 23 9.0	51.20	1 6.21	15 52.89
Mon.	27	14 5 26.24	9.652	12 43 37.9	50.72	1 6.32	15 58.56
Tues.	28	14 9 17.88	9.684	13 3 55.1	50.21	1 6.43	16 3.46
Wed.	29	14 13 10.29	9.716	13 24 0.1	49.68	1 6.54	16 7.60
Thur.	30	14 17 3.47	9.749	13 43 52.5	49.14	1 6.65	16 10.96
Frid.	31	14 20 57.44	9.781	14 3 31.9	48.58	1 6.76	16 13.55
Sat.	32	14 24 52.20		S. 14 22 57.7		1 6.87	16 15.32

* Mean time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal

OCTOBER, 1834.

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be subtracted from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
ed.	1	12 28 42.32	S. 3 6 12.0	16 0.5	10 14.72	12 38 57.04
ur.	2	12 32 19.98	3 29 31.8	16 0.8	10 33.61	12 42 53.59
id.	3	12 35 57.95	3 52 49.3	16 1.1	10 52.19	12 46 50.14
at.	4	12 39 36.23	4 16 4.1	16 1.3	11 10.47	12 50 46.70
on.	5	12 43 14.88	4 39 15.9	16 1.6	11 28.37	12 54 43.25
on.	6	12 46 53.86	5 2 24.2	16 1.9	11 45.94	12 58 39.80
ies.	7	12 50 33.22	5 25 28.6	16 2.2	12 3.14	13 2 36.36
ed.	8	12 54 12.98	5 48 28.8	16 2.5	12 19.93	13 6 32.91
ur.	9	12 57 53.16	6 11 24.5	16 2.8	12 36.30	13 10 29.46
id.	10	13 1 33.75	6 34 15.0	16 3.0	12 52.27	13 14 26.02
at.	11	13 5 14.79	6 57 0.2	16 3.3	13 7.78	13 18 22.57
on.	12	13 8 56.31	7 19 39.7	16 3.6	13 22.81	13 22 19.12
on.	13	13 12 38.31	7 42 13.1	16 3.9	13 37.37	13 26 15.68
ues.	14	13 16 20.81	8 4 39.9	16 4.2	13 51.42	13 30 12.23
ed.	15	13 20 3.85	8 26 59.9	16 4.4	14 4.93	13 34 8.78
ur.	16	13 23 47.44	8 49 12.7	16 4.7	14 17.90	13 38 5.34
id.	17	13 27 31.59	9 11 17.9	16 5.0	14 30.30	13 42 1.89
at.	18	13 31 16.34	9 33 15.2	16 5.3	14 42.10	13 45 58.44
un.	19	13 35 1.70	9 55 4.1	16 5.5	14 53.30	13 49 55.00
on.	20	13 38 47.69	10 16 44.3	16 5.8	15 3.86	13 53 51.55
ues.	21	13 42 34.34	10 38 15.6	16 6.1	15 13.77	13 57 48.11
ed.	22	13 46 21.64	10 59 37.3	16 6.3	15 23.02	14 1 44.66
ur.	23	13 50 9.64	11 20 49.3	16 6.6	15 31.57	14 5 41.21
id.	24	13 53 58.34	11 41 51.1	16 6.8	15 39.43	14 9 37.77
at.	25	13 57 47.76	12 2 42.4	16 7.1	15 46.56	14 13 34.32
un.	26	14 1 37.92	12 23 22.6	16 7.3	15 52.96	14 17 30.88
on.	27	14 5 28.81	12 43 51.5	16 7.6	15 58.62	14 21 27.43
ues.	28	14 9 20.47	13 4 8.6	16 7.8	16 3.51	14 25 23.98
ed.	29	14 13 12.90	13 24 13.5	16 8.1	16 7.64	14 29 20.54
ur.	30	14 17 6.10	13 44 5.8	16 8.3	16 10.99	14 33 17.09
id.	31	14 21 0.08	14 3 45.1	16 8.6	16 13.57	14 37 13.65
at.	32	14 24 54.86	S. 14 23 10.8	16 8.8	16 15.34	14 41 10.20

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
				Noon.	Midnight.	Noon.	Midnight.
1	187° 48' 55" N.	0° 33'	0.0001773	16° 33' 8"	16° 38' 0"	60° 47' 0"	61° 2' 8"
2	188° 48' 27"	0° 33'	0.0000528	16° 41' 1"	16° 42' 8"	61° 13' 8"	61° 20' 1"
3	189° 47' 12"	0° 29'	9.9999276	16° 43' 2"	16° 42' 2"	61° 21' 5"	61° 17' 7"
4	190° 46' 23"	0° 22'	9.9998018	16° 39' 8"	16° 36' 3"	61° 9' 0"	60° 56' 0"
5	191° 45' 37"	0° 13'	9.9996754	16° 31' 6"	16° 25' 9"	60° 38' 8"	60° 17' 9"
6	192° 44' 52" N.	0° 02'	9.9995486	16° 19' 5"	16° 12' 6"	59° 54' 5"	59° 29' 1"
7	193° 44' 9" S.	0° 10'	9.9994213	16° 5' 2"	15° 57' 7"	59° 2' 0"	58° 34' 4"
8	194° 43' 28"	0° 22'	9.9992939	15° 50' 1"	15° 42' 6"	58° 6' 6"	57° 39' 3"
9	195° 42' 49"	0° 34'	9.9991664	15° 35' 4"	15° 28' 6"	57° 12' 8"	56° 47' 6"
10	196° 42' 12"	0° 45'	9.9990389	15° 22' 1"	15° 16' 1"	56° 23' 9"	56° 1' 8"
11	197° 41' 36"	0° 55'	9.9989117	15° 10' 6"	15° 5' 5"	55° 41' 5"	55° 23' 1"
12	198° 41' 2"	0° 02'	9.9987849	15° 1' 1"	14° 57' 1"	55° 6' 6"	54° 52' 1"
13	199° 40' 30"	0° 68'	9.9986586	14° 53' 6"	14° 50' 6"	54° 39' 3"	54° 28' 3"
14	200° 40' 0"	0° 71'	9.9985329	14° 48' 1"	14° 46' 0"	54° 18' 9"	54° 11' 4"
15	201° 39' 32"	0° 70'	9.9984080	14° 44' 4"	14° 43' 1"	54° 5' 4"	54° 0' 8"
16	202° 39' 5"	0° 68'	9.9982841	14° 42' 3"	14° 41' 8"	53° 57' 7"	53° 56' 0"
17	203° 38' 41"	0° 63'	9.9981610	14° 41' 7"	14° 41' 9"	53° 55' 5"	53° 56' 5"
18	204° 38' 19"	0° 55'	9.9980390	14° 42' 0"	14° 43' 0"	53° 58' 8"	54° 2' 5"
19	205° 37' 58"	0° 40'	9.9979181	14° 44' 9"	14° 46' 6"	54° 7' 4"	54° 13' 6"
20	206° 37' 40"	0° 34'	9.9977983	14° 48' 7"	14° 51' 1"	54° 21' 2"	54° 30' 2"
21	207° 37' 24"	0° 21'	9.9976795	14° 54' 0"	14° 57' 3"	54° 40' 9"	54° 52' 9"
22	208° 37' 10" S.	0° 08'	9.9975619	15° 1' 0"	15° 5' 3"	55° 6' 6"	55° 22' 1"
23	209° 36' 58" N.	0° 04'	9.9974451	15° 10' 0"	15° 15' 0"	55° 39' 3"	55° 57' 9"
24	210° 36' 48"	0° 10'	9.9973293	15° 20' 0"	15° 20' 0"	56° 15' 4"	56° 40' 5"
25	211° 36' 41"	0° 25'	9.9972144	15° 33' 1"	15° 39' 9"	57° 4' 3"	57° 29' 0"
26	212° 36' 50"	0° 33'	9.9971001	15° 40' 9"	15° 54' 1"	57° 55' 0"	58° 21' 3"
27	213° 36' 53"	0° 39'	9.9969865	16° 1' 4"	16° 2' 0"	58° 48' 0"	59° 14' 5"
28	214° 36' 52"	0° 46'	9.9968735	16° 13' 5"	16° 22' 8"	59° 40' 0"	60° 3' 7"
29	215° 36' 55"	0° 41'	9.9967610	16° 27' 9"	16° 35' 0"	60° 25' 2"	60° 43' 9"
30	216° 36' 57"	0° 38'	9.9966490	16° 37' 0"	16° 39' 8"	60° 58' 6"	61° 9' 2"
31	217° 36' 48"	0° 31'	9.9965375	16° 41' 5"	16° 41' 8"	61° 15' 2"	61° 16' 3"
32	218° 36' 49" N.	0° 23'	9.9964265	16° 40' 7"	16° 38' 4"	61° 12' 5"	61° 3' 8"

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	Longitude.		Latitude.		Age.	Meridian Passage.
		Noon.	Midnight.	Noon.	Midnight.	Noon.	
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m
Wed.	1	167 2 1 8	174 35 56 2	N.5 1 13 6	N.5 0 58 4	27 9	23 32 1
Thur.	2	182 13 9 2	189 52 16 9	4 55 22 7	4 44 28 8	28 9	♂
Frid.	3	197 31 52 1	205 10 27 1	4 28 26 7	4 7 36 9	0 5	0 25 6
Sat.	4	212 46 38 9	220 19 12 8	3 42 27 5	3 13 33 9	1 5	1 19 5
Sun.	5	227 47 3 1	235 9 18 8	2 41 35 4	2 7 14 9	2 5	2 14 7
Mon.	6	242 25 22 0	249 34 48 2	1 31 15 3	N.0 54 19 1	3 5	3 11 3
Tues.	7	256 37 24 7	263 33 10 9	N.0 17 4 9	S.0 19 49 8	4 5	4 9 0
Wed.	8	270 22 15 0	277 4 53 4	S.0 55 53 4	1 30 36 8	5 5	5 6 9
Thur.	9	283 41 27 5	290 12 22 5	2 3 35 6	2 34 28 3	6 5	6 3 5
Frid.	10	296 38 6 8	302 59 9 7	3 2 57 9	3 28 49 3	7 5	6 57 6
Sat.	11	309 16 0 7	315 29 8 9	3 51 50 7	4 11 51 8	8 5	7 48 5
Sun.	12	321 39 2 5	327 46 7 5	4 28 45 4	4 42 24 8	9 5	8 36 0
Mon.	13	333 50 47 7	339 53 24 9	4 52 46 0	4 59 46 6	10 5	9 20 6
Tues.	14	345 54 19 5	351 53 48 4	5 3 24 4	5 3 40 2	11 5	10 2 9
Wed.	15	357 52 7 4	3 49 30 8	5 0 36 9	4 54 16 2	12 5	10 43 6
Thur.	16	9 46 10 6	15 42 18 3	4 44 44 0	4 32 6 5	13 5	11 23 8
Frid.	17	21 38 5 4	27 33 42 5	4 16 31 8	3 58 9 6	14 5	12 4 2
Sat.	18	33 29 21 6	39 25 14 4	3 37 11 3	3 13 48 0	15 5	12 45 6
Sun.	19	45 21 34 4	51 18 37 5	2 48 14 1	2 20 44 4	16 5	13 28 8
Mon.	20	57 16 40 0	63 16 2 2	1 51 34 7	1 21 1 8	17 5	14 14 4
Tues.	21	69 17 5 0	75 20 12 9	S.0 49 23 2	S.0 16 57 9	18 5	15 2 8
Wed.	22	81 25 52 0	87 34 30 9	N.0 15 54 5	N.0 48 54 4	19 5	15 53 8
Thur.	23	93 46 39 1	100 2 48 2	1 21 39 8	1 53 48 4	20 5	16 47 1
Frid.	24	106 23 29 8	112 49 15 3	2 24 57 3	2 54 41 8	21 5	17 41 6
Sat.	25	119 20 34 9	125 57 55 3	3 22 36 4	3 48 14 3	22 5	18 36 4
Sun.	26	132 41 40 3	139 32 7 1	4 11 9 1	4 30 52 4	23 5	19 30 6
Mon.	27	146 29 27 8	153 33 43 1	4 46 57 4	4 58 58 2	24 5	20 23 8
Tues.	28	160 44 44 7	168 2 11 8	5 6 30 3	5 9 14 0	25 5	21 16 3
Wed.	29	175 25 32 1	182 53 59 3	5 6 53 4	4 59 19 1	26 5	22 8 7
Thur.	30	190 26 36 2	198 2 15 0	4 46 30 1	4 28 33 9	27 5	23 1 8
Frid.	31	205 39 39 4	213 17 28 5	4 5 46 5	3 38 33 5	28 5	23 56 6
Sat.	32	220 54 20 9	228 28 55 9	N.3 7 28 4	N.2 33 11 4	0 2	♂

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
WEDNESDAY 1.				FRIDAY 3.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	11 20 13.41	N.9 44 42.3	146.18	0	13 11 29.27	S. 2 45 4.9
1	11 22 33.62	9 30 5.2	146.89	1	13 13 48.30	3 1 0.2
2	11 24 53.74	9 15 23.8	147.58	2	13 16 7.37	3 16 54.2
3	11 27 13.78	9 0 38.4	148.25	3	13 18 26.50	3 32 46.8
4	11 29 33.73	8 45 48.9	148.90	4	13 20 45.68	3 48 38.1
5	11 31 53.61	8 30 55.5	149.54	5	13 23 4.92	4 4 27.7
6	11 34 13.40	8 15 58.2	150.16	6	13 25 24.22	4 20 15.7
7	11 36 33.12	8 0 57.3	150.76	7	13 27 43.58	4 36 1.9
8	11 38 52.77	7 45 52.8	151.34	8	13 30 3.01	4 51 46.2
9	11 41 12.35	7 30 44.7	151.91	9	13 32 22.51	5 7 28.4
10	11 43 31.85	7 15 33.3	152.45	10	13 34 42.08	5 23 8.6
11	11 45 51.29	7 0 18.5	152.98	11	13 37 1.72	5 38 46.4
12	11 48 10.68	6 45 0.6	153.50	12	13 39 21.45	5 54 21.9
13	11 50 30.00	6 29 39.6	153.99	13	13 41 41.25	6 9 54.9
14	11 52 49.25	6 14 15.7	154.47	14	13 44 1.14	6 25 25.2
15	11 55 8.46	5 58 48.9	154.92	15	13 46 21.11	6 40 52.9
16	11 57 27.61	5 43 19.4	155.36	16	13 48 41.17	6 56 17.7
17	11 59 46.70	5 27 47.2	155.78	17	13 51 1.33	7 11 39.6
18	12 2 5.75	5 12 12.5	156.18	18	13 53 21.58	7 26 58.5
19	12 4 24.75	4 56 35.5	156.56	19	13 55 41.92	7 42 14.1
20	12 6 43.71	4 40 56.1	156.92	20	13 58 2.36	7 57 26.5
21	12 9 2.63	4 25 14.6	157.26	21	14 0 22.91	8 12 35.5
22	12 11 21.52	4 9 31.0	157.59	22	14 2 43.55	8 27 41.0
23	12 13 40.37	N.3 53 45.4	157.89	23	14 5 4.31	S. 8 42 42.8
THURSDAY 2.				SATURDAY 4.		
0	12 15 59.18	N.3 37 58.1	158.18	0	14 7 25.17	S. 8 57 41.0
1	12 18 17.97	3 22 9.0	158.44	1	14 9 46.14	9 12 35.3
2	12 20 36.73	3 6 18.4	158.69	2	14 12 7.23	9 27 25.6
3	12 22 55.47	2 50 26.2	158.92	3	14 14 28.43	9 42 12.0
4	12 25 14.19	2 34 32.7	159.13	4	14 16 49.75	9 56 54.1
5	12 27 32.89	2 18 38.0	159.32	5	14 19 11.18	10 11 32.0
6	12 29 51.58	2 2 42.1	159.48	6	14 21 32.74	10 26 5.5
7	12 32 10.26	1 46 45.2	159.64	7	14 23 54.41	10 40 34.5
8	12 34 28.94	1 30 47.4	159.77	8	14 26 16.22	10 54 59.0
9	12 36 47.61	1 14 48.8	159.88	9	14 28 38.14	11 9 18.7
10	12 39 6.27	0 58 49.5	159.97	10	14 31 0.19	11 23 33.7
11	12 41 24.94	0 42 49.7	160.04	11	14 33 22.37	11 37 43.8
12	12 43 43.62	0 26 49.4	160.10	12	14 35 44.68	11 51 48.9
13	12 46 2.30	N.0 10 48.8	160.13	13	14 38 7.12	12 5 48.9
14	12 48 21.00	S.0 5 12.0	160.14	14	14 40 29.69	12 19 43.7
15	12 50 39.71	0 21 12.8	160.14	15	14 42 52.39	12 33 33.3
16	12 52 58.44	0 37 13.7	160.11	16	14 45 15.23	12 47 17.4
17	12 55 17.19	0 53 14.3	160.07	17	14 47 38.20	13 0 56.0
18	12 57 35.96	1 9 14.8	160.00	18	14 50 1.31	13 14 29.1
19	12 59 54.76	1 25 14.8	159.92	19	14 52 24.55	13 27 56.5
20	13 2 13.59	1 41 14.3	159.82	20	14 54 47.94	13 41 18.0
21	13 4 32.45	1 57 13.2	159.69	21	14 57 11.46	13 54 33.8
22	13 6 51.35	2 13 11.3	159.55	22	14 59 35.12	14 7 43.5
23	13 9 10.29	2 29 8.6	159.39	23	15 1 58.93	14 20 47.2
24	13 11 29.27	S.2 45 4.9		24	15 4 22.87	S.14 33 44.8

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
SUNDAY 5.				TUESDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 4 22.87	S. 14 33 44.8	128.55	0	17 1 59.49	S. 22 30 18.7	64.88
1	15 6 46.96	14 46 36.1	127.50	1	17 4 28.66	22 36 48.0	63.36
2	15 9 11.18	14 59 21.1	126.43	2	17 6 57.86	22 43 8.1	61.83
3	15 11 35.55	15 11 59.6	125.34	3	17 9 27.08	22 49 19.1	60.31
4	15 14 0.05	15 24 31.7	124.25	4	17 11 56.32	22 55 21.0	58.77
5	15 16 24.70	15 36 57.2	123.13	5	17 14 25.58	23 1 13.6	57.24
6	15 18 49.49	15 49 16.0	122.01	6	17 16 54.85	23 6 57.0	55.70
7	15 21 14.42	16 1 28.0	120.87	7	17 19 24.12	23 12 31.3	54.16
8	15 23 39.49	16 13 33.2	119.72	8	17 21 53.39	23 17 56.2	52.62
9	15 26 4.70	16 25 31.5	118.55	9	17 24 22.66	23 23 11.9	51.07
10	15 28 30.05	16 37 22.8	117.37	10	17 26 51.92	23 28 18.4	49.53
11	15 30 55.54	16 49 7.0	116.18	11	17 29 21.17	23 33 15.5	47.98
12	15 33 21.16	17 0 44.1	114.97	12	17 31 50.40	23 38 3.4	46.43
13	15 35 46.92	17 12 13.9	113.75	13	17 34 19.60	23 42 42.0	44.89
14	15 38 12.82	17 23 36.5	112.52	14	17 36 48.78	23 47 11.3	43.33
15	15 40 38.85	17 34 51.6	111.28	15	17 39 17.91	23 51 31.3	41.78
16	15 43 5.01	17 45 59.3	110.03	16	17 41 47.01	23 55 42.0	40.23
17	15 45 31.30	17 56 59.4	108.76	17	17 44 16.06	23 59 43.4	38.68
18	15 47 57.73	18 7 52.0	107.48	18	17 46 45.06	24 3 35.5	37.13
19	15 50 24.28	18 18 36.9	106.19	19	17 49 14.01	24 7 18.2	35.58
20	15 52 50.96	18 29 14.0	104.89	20	17 51 42.89	24 10 51.7	34.02
21	15 55 17.76	18 39 43.3	103.58	21	17 54 11.71	24 14 15.8	32.47
22	15 57 44.69	18 50 4.8	102.26	22	17 56 40.46	24 17 30.7	30.92
23	16 0 11.74	S. 19 0 18.3	100.92	23	17 59 9.12	S. 24 20 36.2	29.38
MONDAY 6.				WEDNESDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 2 38.91	S. 19 10 23.9	99.57	0	18 1 37.71	S. 24 23 32.5	27.82
1	16 5 6.20	19 20 21.3	98.22	1	18 4 6.21	24 26 19.4	26.28
2	16 7 33.60	19 30 10.6	96.86	2	18 6 34.61	24 28 57.1	24.74
3	16 10 1.12	19 39 51.8	95.49	3	18 9 2.91	24 31 25.5	23.20
4	16 12 28.74	19 49 24.7	94.10	4	18 11 31.11	24 33 44.7	21.66
5	16 14 56.48	19 58 49.3	92.71	5	18 13 59.20	24 35 54.7	20.12
6	16 17 24.31	20 8 5.6	91.31	6	18 16 27.18	24 37 55.4	18.59
7	16 19 52.25	20 17 13.4	89.90	7	18 18 55.03	24 39 46.9	17.06
8	16 22 20.29	20 26 12.9	88.49	8	18 21 22.75	24 41 29.3	15.54
9	16 24 48.42	20 35 3.8	87.06	9	18 23 50.35	24 43 2.5	14.01
10	16 27 16.64	20 43 46.2	85.63	10	18 26 17.81	24 44 26.6	12.50
11	16 29 44.96	20 52 20.0	84.19	11	18 28 45.12	24 45 41.6	10.98
12	16 32 13.36	21 0 45.2	82.75	12	18 31 12.29	24 46 47.5	9.47
13	16 34 41.84	21 9 1.6	81.30	13	18 33 39.31	24 47 44.4	7.97
14	16 37 10.40	21 17 9.4	79.83	14	18 36 6.16	24 48 32.2	6.47
15	16 39 39.04	21 25 8.4	78.37	15	18 38 32.86	24 49 11.0	4.97
16	16 42 7.74	21 32 58.6	76.89	16	18 40 59.39	24 49 40.8	3.48
17	16 44 36.52	21 40 40.0	75.41	17	18 43 25.74	24 50 1.7	2.00
18	16 47 5.36	21 48 12.4	73.92	18	18 45 51.92	24 50 13.7	0.52
19	16 49 34.25	21 55 36.0	72.43	19	18 48 17.91	24 50 16.8	0.96
20	16 52 3.21	22 2 50.6	70.93	20	18 50 43.72	24 50 11.0	2.43
21	16 54 32.21	22 9 56.1	69.43	21	18 53 9.34	24 49 56.5	3.89
22	16 57 1.26	22 16 52.7	67.92	22	18 55 34.75	24 49 33.1	5.35
23	16 59 30.36	22 23 40.2	66.41	23	18 57 59.97	24 49 1.0	6.80
24	17 1 59.49	S. 22 30 18.7		24	19 0 24.98	S. 24 48 20.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.
THURSDAY 9.				SATURDAY 11.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	19 0 24.98	S. 24 48 20.2	8.25	0	20 51 13.95	S. 21 40 32.7
1	19 2 49.78	24 47 30.7	9.69	1	20 53 25.03	21 33 46.2
2	19 5 14.36	24 46 32.6	11.12	2	20 55 35.79	21 26 53.6
3	19 7 38.73	24 45 25.9	12.54	3	20 57 46.23	21 19 55.1
4	19 10 2.87	24 44 10.7	13.96	4	20 59 56.35	21 12 50.6
5	19 12 26.78	24 42 46.9	15.37	5	21 2 6.14	21 5 40.3
6	19 14 50.46	24 41 14.7	16.77	6	21 4 15.62	20 58 24.2
7	19 17 13.90	24 39 34.1	18.17	7	21 6 24.78	20 51 2.4
8	19 19 37.11	24 37 45.1	19.55	8	21 8 33.61	20 43 34.9
9	19 22 0.07	24 35 47.7	20.93	9	21 10 42.13	20 36 1.7
10	19 24 22.78	24 33 42.1	22.31	10	21 12 50.33	20 28 23.1
11	19 26 45.24	24 31 28.3	23.67	11	21 14 58.21	20 20 38.9
12	19 29 7.44	24 29 6.3	25.02	12	21 17 5.77	20 12 49.3
13	19 31 29.38	24 26 36.1	26.37	13	21 19 13.02	20 4 54.3
14	19 33 51.07	24 23 57.9	27.71	14	21 21 19.95	19 56 54.0
15	19 36 12.48	24 21 11.6	29.04	15	21 23 26.56	19 48 48.4
16	19 38 33.63	24 18 17.4	30.36	16	21 25 32.87	19 40 37.7
17	19 40 54.50	24 15 15.2	31.68	17	21 27 38.86	19 32 21.8
18	19 43 15.11	24 12 5.2	32.98	18	21 29 44.54	19 24 0.9
19	19 45 35.43	24 8 47.3	34.28	19	21 31 49.91	19 15 34.9
20	19 47 55.47	24 5 21.6	35.57	20	21 33 54.98	19 7 3.9
21	19 50 15.23	24 1 48.2	36.84	21	21 35 59.74	18 58 28.0
22	19 52 34.70	23 58 7.2	38.11	22	21 38 4.19	18 49 47.3
23	19 54 53.88	S. 23 54 18.5	39.37	23	21 40 8.34	S. 18 41 1.8
FRIDAY 10.				SUNDAY 12.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	19 57 12.77	S. 23 50 22.2	40.63	0	21 42 12.19	S. 18 32 11.6
1	19 59 31.37	23 46 18.5	41.87	1	21 44 15.74	18 23 16.6
2	20 1 49.67	23 42 7.3	43.10	2	21 46 18.99	18 14 17.1
3	20 4 7.67	23 37 48.7	44.32	3	21 48 21.94	18 5 13.0
4	20 6 25.37	23 33 22.7	45.54	4	21 50 24.60	17 56 4.4
5	20 8 42.77	23 28 49.5	46.74	5	21 52 26.96	17 46 51.3
6	20 10 59.86	23 24 9.1	47.94	6	21 54 29.04	17 37 33.8
7	20 13 16.65	23 19 21.4	49.12	7	21 56 30.82	17 28 12.0
8	20 15 33.13	23 14 26.7	50.30	8	21 58 32.32	17 18 46.0
9	20 17 49.30	23 9 24.9	51.46	9	22 0 33.53	17 9 15.7
10	20 20 5.16	23 4 16.2	52.62	10	22 2 34.46	16 59 41.2
11	20 22 20.71	22 59 0.5	53.76	11	22 4 35.11	16 50 2.7
12	20 24 35.95	22 53 37.9	54.90	12	22 6 35.48	16 40 20.1
13	20 26 50.87	22 48 8.5	56.02	13	22 8 35.57	16 30 33.4
14	20 29 5.47	22 42 32.4	57.14	14	22 10 35.39	16 20 42.9
15	20 31 19.76	22 36 49.6	58.24	15	22 12 34.94	16 10 48.4
16	20 33 33.72	22 31 0.1	59.34	16	22 14 34.22	16 0 50.2
17	20 35 47.37	22 25 4.1	60.43	17	22 16 33.23	15 50 48.1
18	20 38 0.70	22 19 1.5	61.50	18	22 18 31.98	15 40 42.3
19	20 40 13.71	22 12 52.5	62.57	19	22 20 30.47	15 30 32.9
20	20 42 26.40	22 6 37.1	63.62	20	22 22 28.69	15 20 19.8
21	20 44 38.77	22 0 15.5	64.67	21	22 24 26.66	15 10 3.2
22	20 46 50.50	21 53		22	22 26 24.38	14 59 43.0
23	20 49 1.23	21 47		23	22 28 21.84	14 49 19.4
24	20 5 13.96	40 3			22 30 19.17	14 38 52.4

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 13.				WEDNESDAY 15.		
h m s	° ' "	"		h m s	° ' "	"
2 30 19.06	S. 14 38 52.4	105.06	0	0 0 10.86	S. 5 26 36.5	122.41
2 32 16.03	14 28 22.0	105.61	1	0 1 59.59	5 14 22.0	122.58
2 34 12.75	14 17 48.4	106.15	2	0 3 48.23	5 2 6.5	122.75
2 36 9.24	14 7 11.5	106.69	3	0 5 36.78	4 49 50.0	122.91
2 38 5.49	13 56 31.4	107.21	4	0 7 25.24	4 37 32.6	123.07
2 40 1.50	13 45 48.1	107.73	5	0 9 13.62	4 25 14.2	123.21
2 41 57.28	13 35 1.7	108.24	6	0 11 1.92	4 12 54.9	123.35
2 43 52.83	13 24 12.3	108.74	7	0 12 50.15	4 0 34.8	123.49
2 45 48.16	13 13 19.9	109.23	8	0 14 38.30	3 48 13.8	123.61
2 47 43.26	13 2 24.5	109.71	9	0 16 26.39	3 35 52.2	123.73
2 49 38.14	12 51 26.3	110.19	10	0 18 14.41	3 23 29.8	123.84
2 51 32.80	12 40 25.1	110.65	11	0 20 2.36	3 11 6.8	123.94
2 53 27.25	12 29 21.2	111.12	12	0 21 50.26	2 58 43.1	124.03
2 55 21.49	12 18 14.5	111.57	13	0 23 38.10	2 46 18.9	124.12
2 57 15.52	12 7 5.1	112.01	14	0 25 25.89	2 33 54.2	124.21
2 59 9.34	11 55 53.1	112.44	15	0 27 13.64	2 21 29.0	124.28
3 1 2.96	11 44 38.4	112.87	16	0 29 1.33	2 9 3.3	124.35
3 2 56.38	11 33 21.2	113.29	17	0 30 48.98	1 56 37.2	124.41
3 4 49.61	11 22 1.4	113.70	18	0 32 36.60	1 44 10.8	124.46
3 6 42.64	11 10 39.2	114.10	19	0 34 24.17	1 31 44.0	124.51
3 8 35.48	10 59 14.6	114.50	20	0 36 11.72	1 19 16.9	124.55
3 10 28.14	10 47 47.6	114.88	21	0 37 59.23	1 6 49.6	124.58
3 12 20.61	10 36 18.3	115.26	22	0 39 46.72	0 54 22.2	124.61
3 14 12.90	S. 10 24 46.8	115.63	23	0 41 34.19	S. 0 41 54.5	124.62
TUESDAY 14.				THURSDAY 16.		
3 16 5.01	S. 10 13 13.0	116.00	0	0 43 21.64	S. 0 29 26.8	124.64
3 17 56.95	10 1 37.0	116.35	1	0 45 9.07	0 16 59.0	124.64
3 19 48.71	9 49 58.9	116.70	2	0 46 56.49	S. 0 4 31.1	124.64
3 21 40.31	9 38 18.7	117.03	3	0 48 43.90	N. 0 7 56.7	124.63
3 23 31.74	9 26 36.5	117.37	4	0 50 31.31	0 20 24.5	124.61
3 25 23.02	9 14 52.3	117.69	5	0 52 18.71	0 32 52.2	124.59
3 27 14.13	9 3 6.2	118.00	6	0 54 6.11	0 45 19.7	124.56
3 29 5.09	8 51 18.2	118.31	7	0 55 53.51	0 57 47.0	124.52
3 30 55.90	8 39 28.3	118.61	8	0 57 40.93	1 10 14.2	124.48
3 32 46.55	8 27 36.6	118.90	9	0 59 28.35	1 22 41.0	124.42
3 34 37.06	8 15 43.2	119.19	10	1 1 15.79	1 35 7.6	124.37
3 36 27.44	8 3 48.1	119.46	11	1 3 3.24	1 47 33.7	124.30
3 38 17.67	7 51 51.3	119.73	12	1 4 50.72	1 59 59.6	124.23
3 40 7.77	7 39 52.9	119.99	13	1 6 38.22	2 12 24.9	124.15
3 41 57.73	7 27 53.0	120.25	14	1 8 25.75	2 24 49.8	124.06
3 43 47.57	7 15 51.5	120.49	15	1 10 13.31	2 37 14.2	123.97
3 45 37.28	7 3 48.5	120.74	16	1 12 0.90	2 49 37.9	123.86
3 47 26.87	6 51 44.1	120.97	17	1 13 48.53	3 2 1.1	123.76
3 49 16.34	6 39 38.3	121.19	18	1 15 36.19	3 14 23.7	123.64
3 51 5.70	6 27 31.1	121.41	19	1 17 23.90	3 26 45.5	123.52
3 52 54.94	6 15 22.7	121.63	20	1 19 11.66	3 39 6.6	123.38
3 54 44.07	6 3 12.9	121.83	21	1 20 59.47	3 51 26.9	123.25
3 56 33.10	5 51 1.9	122.03	22	1 22 47.32	4 3 46.4	123.11
3 58 22.03	5 38 49.8	122.22	23	1 24 35.24	4 16 5.1	122.95
0 0 10.86	S. 5 26 36.5		24	1 26 23.21	N. 4 28 22.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hours.	Right Ascension.	Declination.	Diff.
FRIDAY 17.				SUNDAY 19.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	
0	1 26 23.21	N. 4 28 22.8	122.80	0	2 54 55.51	N. 13 46 21.4	1
1	1 28 11.24	4 40 39.6	122.63	1	2 56 50.06	13 57 0.0	1
2	1 29 59.35	4 52 55.4	122.46	2	2 58 44.81	14 7 35.5	1
3	1 31 47.51	5 5 10.1	122.28	3	3 0 39.76	14 18 7.8	1
4	1 33 35.76	5 17 23.7	122.09	4	3 2 34.93	14 28 36.7	1
5	1 35 24.07	5 29 36.3	121.89	5	3 4 30.30	14 39 2.4	1
6	1 37 12.47	5 41 47.6	121.69	6	3 6 25.88	14 49 24.6	1
7	1 39 0.94	5 53 57.8	121.48	7	3 8 21.68	14 59 43.4	1
8	1 40 49.50	6 6 6.7	121.27	8	3 10 17.69	15 9 58.8	1
9	1 42 38.15	6 18 14.3	121.04	9	3 12 13.92	15 20 10.6	1
10	1 44 26.89	6 30 20.5	120.81	10	3 14 10.37	15 30 18.8	1
11	1 46 15.72	6 42 25.4	120.57	11	3 16 7.05	15 40 23.4	1
12	1 48 4.65	6 54 28.8	120.32	12	3 18 3.94	15 50 24.4	1
13	1 49 53.68	7 6 30.7	120.07	13	3 20 1.06	16 0 21.5	1
14	1 51 42.82	7 18 31.2	119.81	14	3 21 58.41	16 10 15.0	1
15	1 53 32.06	7 30 30.0	119.54	15	3 23 55.99	16 20 4.5	1
16	1 55 21.41	7 42 27.3	119.27	16	3 25 53.80	16 29 50.2	1
17	1 57 10.87	7 54 22.9	118.98	17	3 27 51.85	16 39 32.0	1
18	1 59 0.45	8 6 16.8	118.69	18	3 29 50.13	16 49 9.8	1
19	2 0 50.15	8 18 8.9	118.40	19	3 31 48.64	16 58 43.5	1
20	2 2 39.97	8 29 59.3	118.09	20	3 33 47.40	17 8 13.2	1
21	2 4 29.91	8 41 47.9	117.78	21	3 35 46.40	17 17 38.7	1
22	2 6 19.97	8 53 34.6	117.46	22	3 37 45.64	17 27 0.1	1
23	2 8 10.17	N. 9 5 19.3	117.13	23	3 39 45.12	N. 17 36 17.2	1
SATURDAY 18.				MONDAY 20.			
	<i>h m s</i>	<i>° ′ ″</i>	<i>″</i>		<i>h m s</i>	<i>° ′ ″</i>	
0	2 10 0.50	N. 9 17 2.2	116.80	0	3 41 44.85	N. 17 45 30.1	1
1	2 11 50.97	9 28 43.0	116.46	1	3 43 44.83	17 54 38.5	1
2	2 13 41.57	9 40 21.7	116.11	2	3 45 45.06	18 3 42.7	1
3	2 15 32.31	9 51 58.4	115.76	3	3 47 45.53	18 12 42.3	1
4	2 17 23.20	10 3 33.0	115.39	4	3 49 46.26	18 21 37.5	1
5	2 19 14.23	10 15 5.3	115.02	5	3 51 47.24	18 30 28.2	1
6	2 21 5.42	10 26 35.4	114.64	6	3 53 48.48	18 39 14.2	1
7	2 22 56.76	10 38 3.2	114.25	7	3 55 49.97	18 47 55.6	1
8	2 24 48.25	10 49 28.7	113.85	8	3 57 51.71	18 56 32.3	1
9	2 26 39.90	11 0 51.8	113.45	9	3 59 53.72	19 5 4.3	1
10	2 28 31.71	11 12 12.5	113.04	10	4 1 55.98	19 13 31.4	1
11	2 30 23.69	11 23 30.8	112.62	11	4 3 58.50	19 21 53.7	1
12	2 32 15.83	11 34 46.5	112.19	12	4 6 1.28	19 30 11.1	1
13	2 34 8.14	11 45 59.6	111.75	13	4 8 4.32	19 38 23.5	1
14	2 36 0.63	11 57 10.2	111.31	14	4 10 7.62	19 46 31.0	1
15	2 37 53.29	12 8 18.0	110.86	15	4 12 11.18	19 54 33.3	1
16	2 39 46.12	12 19 23.2	110.40	16	4 14 15.00	20 2 30.6	1
17	2 41 39.14	12 30 25.6	109.93	17	4 16 19.09	20 10 22.7	1
18	2 43 32.34	12 41 25.2	109.46	18	4 18 23.45	20 18 9.6	1
19	2 45 25.72	12 52 22.0	108.98	19	4 20 28.07	20 25 51.2	1
20	2 47 19.30	13 3 15.8	108.49	20	4 22 32.95	20 33 27.4	1
21	2 49 13.06	13 14 6.7	107.99	21	4 24 38.09	20 40 58.4	1
22	2 51 7.02	13 24 54.7	107.48	22	4 26 43.51	20 48 23.8	1
23	2 53 1.16	13 35 39.6	106.97	23	4 28 49.18	20 55 43.9	1
24	2 54 55.51	N. 13 46 21.4		24	4 30 55.13	N. 21 2 58.4	1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>TUESDAY 21.</i>				<i>THURSDAY 23.</i>		
<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>
4 30 55.13	N. 21 2 58.4	71.48	0	6 16 38.32	N. 24 46 4.2	17.43
4 33 1.34	21 10 7.3	70.55	1	6 18 55.98	24 47 48.8	16.14
4 35 7.82	21 17 10.5	69.60	2	6 21 13.82	24 49 25.6	14.83
4 37 14.56	21 24 8.1	68.64	3	6 23 31.84	24 50 54.6	13.52
4 39 21.57	21 31 0.0	67.68	4	6 25 50.03	24 52 15.8	12.21
4 41 28.85	21 37 46.1	66.71	5	6 28 8.39	24 53 29.0	10.89
4 43 36.39	21 44 26.3	65.72	6	6 30 26.92	24 54 34.4	9.57
4 45 44.19	21 51 0.6	64.73	7	6 32 45.61	24 55 31.8	8.24
4 47 52.26	21 57 29.0	63.74	8	6 35 4.47	24 56 21.2	6.91
4 50 0.60	22 3 51.5	62.73	9	6 37 23.48	24 57 2.7	5.57
4 52 9.19	22 10 7.8	61.71	10	6 39 42.64	24 57 36.1	4.23
4 54 18.06	22 16 18.1	60.69	11	6 42 1.95	24 58 1.5	2.88
4 56 27.18	22 22 22.3	59.66	12	6 44 21.40	24 58 18.8	1.53
4 58 36.57	22 28 20.2	58.62	13	6 46 41.00	24 58 27.9	0.18
5 0 46.21	22 34 11.9	57.57	14	6 49 0.73	24 58 29.0	1.18
5 2 56.12	22 39 57.3	56.51	15	6 51 20.59	24 58 21.9	2.55
5 5 6.28	22 45 36.4	55.45	16	6 53 40.59	24 58 6.6	3.91
5 7 16.71	22 51 9.1	54.38	17	6 56 0.70	24 57 43.2	5.28
5 9 27.39	22 56 35.4	53.30	18	6 58 20.94	24 57 11.5	6.66
5 11 38.32	23 1 55.2	52.21	19	7 0 41.30	24 56 31.5	8.03
5 13 49.51	23 7 8.4	51.11	20	7 3 1.77	24 55 43.3	9.41
5 16 0.95	23 12 15.1	50.01	21	7 5 22.35	24 54 46.9	10.79
5 18 12.65	23 17 15.1	48.90	22	7 7 43.03	24 53 42.1	12.18
5 20 24.59	N. 23 22 8.5	47.78	23	7 10 3.82	N. 24 52 29.0	13.57
<i>WEDNESDAY 22.</i>				<i>FRIDAY 24.</i>		
5 22 36.78	N. 23 26 55.2	46.65	0	7 12 24.70	N. 24 51 7.6	14.96
5 24 49.22	23 31 35.1	45.52	1	7 14 45.68	24 49 37.8	16.35
5 27 1.90	23 36 8.2	44.37	2	7 17 6.74	24 47 59.7	17.75
5 29 14.83	23 40 34.5	43.22	3	7 19 27.88	24 46 13.2	19.15
5 31 27.99	23 44 53.8	42.07	4	7 21 49.10	24 44 18.3	20.55
5 33 41.40	23 49 6.2	40.90	5	7 24 10.40	24 42 15.0	21.95
5 35 55.04	23 53 11.6	39.73	6	7 26 31.78	24 40 3.3	23.35
5 38 8.92	23 57 10.0	38.55	7	7 28 53.22	24 37 43.2	24.75
5 40 23.03	24 1 1.2	37.36	8	7 31 14.72	24 35 14.7	26.16
5 42 37.37	24 4 45.4	36.16	9	7 33 36.28	24 32 37.7	27.57
5 44 51.94	24 8 22.4	34.96	10	7 35 57.90	24 29 52.3	28.97
5 47 6.73	24 11 52.1	33.75	11	7 38 19.57	24 26 58.5	30.38
5 49 21.75	24 15 14.7	32.54	12	7 40 41.29	24 23 56.2	31.79
5 51 36.98	24 18 29.9	31.31	13	7 43 3.05	24 20 45.5	33.20
5 53 52.44	24 21 37.8	30.08	14	7 45 24.86	24 17 26.3	34.61
5 56 8.10	24 24 38.3	28.85	15	7 47 46.69	24 13 58.7	36.02
5 58 23.98	24 27 31.3	27.60	16	7 50 8.56	24 10 22.6	37.43
6 0 40.07	24 30 16.9	26.35	17	7 52 30.45	24 6 38.0	38.84
6 2 56.37	24 32 55.1	25.10	18	7 54 52.37	24 2 45.0	40.24
6 5 12.87	24 35 25.6	23.83	19	7 57 14.30	23 58 43.5	41.65
6 7 29.58	24 37 48.6	22.57	20	7 59 36.26	23 54 33.6	43.06
6 9 46.47	24 40 4.0	21.29	21	8 1 58.22	23 50 15.3	44.46
6 12 3.56	24 42 11.8	20.01	22	8 4 20.19	23 45 48.5	45.87
6 14 20.85	24 44 11.9	18.73	23	8 6 42.16	23 41 13.3	47.27
6 16 38.32	N. 24 46 4.2		24	8 9 4.13	N. 23 36 29.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
SATURDAY 25.				MONDAY 27.		
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>
0	8 9 4.13	N. 23 36 29.6	48.68	0	10 1 42.83	N. 17 11 17.7
1	8 11 26.10	23 31 37.5	50.08	1	10 4 1.69	17 0 11.9
2	8 13 48.06	23 26 37.1	51.48	2	10 6 20.46	16 48 59.4
3	8 16 10.01	23 21 28.2	52.87	3	10 8 39.14	16 37 40.2
4	8 18 31.94	23 16 11.0	54.27	4	10 10 57.72	16 26 14.3
5	8 20 53.86	23 10 45.3	55.66	5	10 13 16.21	16 14 41.8
6	8 23 15.76	23 5 11.4	57.05	6	10 15 34.61	16 3 2.8
7	8 25 37.64	22 59 29.1	58.44	7	10 17 52.92	15 51 17.3
8	8 27 59.48	22 53 38.5	59.82	8	10 20 11.14	15 39 25.5
9	8 30 21.30	22 47 39.6	61.20	9	10 22 29.26	15 27 27.2
10	8 32 43.09	22 41 32.4	62.58	10	10 24 47.30	15 15 22.7
11	8 35 4.83	22 35 16.9	63.95	11	10 27 5.25	15 3 12.0
12	8 37 26.54	22 28 53.2	65.32	12	10 29 23.12	14 50 55.1
13	8 39 48.20	22 22 21.3	66.69	13	10 31 40.90	14 38 32.0
14	8 42 9.82	22 15 41.1	68.05	14	10 33 58.59	14 26 3.0
15	8 44 31.39	22 8 52.8	69.41	15	10 36 16.20	14 13 28.0
16	8 46 52.92	22 1 56.4	70.76	16	10 38 33.73	14 0 47.1
17	8 49 14.39	21 54 51.8	72.11	17	10 40 51.18	13 48 0.4
18	8 51 35.80	21 47 39.1	73.46	18	10 43 8.54	13 35 8.0
19	8 53 57.16	21 40 18.4	74.80	19	10 45 25.83	13 22 9.8
20	8 56 18.45	21 32 49.5	76.14	20	10 47 43.04	13 9 6.1
21	8 58 39.68	21 25 12.7	77.47	21	10 50 0.18	12 55 56.8
22	9 1 0.85	21 17 27.9	78.80	22	10 52 17.25	12 42 42.1
23	9 3 21.95	N. 21 9 35.1	80.12	23	10 54 34.24	N. 12 29 22.0
SUNDAY 26.				TUESDAY 28.		
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>
0	9 5 42.98	N. 21 1 34.4	81.44	0	10 56 51.17	N. 12 15 56.6
1	9 8 3.95	20 53 25.7	82.75	1	10 59 8.03	12 2 25.9
2	9 10 24.84	20 45 9.2	84.05	2	11 1 24.82	11 48 50.1
3	9 12 45.66	20 36 44.9	85.35	3	11 3 41.55	11 35 9.3
4	9 15 6.39	20 28 12.8	86.65	4	11 5 58.22	11 21 23.4
5	9 17 27.05	20 19 32.9	87.93	5	11 8 14.83	11 7 32.6
6	9 19 47.62	20 10 45.3	89.21	6	11 10 31.38	10 53 37.0
7	9 22 8.11	20 1 50.1	90.49	7	11 12 47.88	10 39 36.6
8	9 24 28.51	19 52 47.1	91.75	8	11 15 4.33	10 25 31.3
9	9 26 48.82	19 43 36.6	93.01	9	11 17 20.73	10 11 21.8
10	9 29 9.04	19 34 18.6	94.26	10	11 19 37.08	9 57 7.6
11	9 31 29.17	19 24 53.0	95.51	11	11 21 53.39	9 42 49.0
12	9 33 49.20	19 15 19.9	96.75	12	11 24 9.65	9 28 26.0
13	9 36 9.17	19 5 39.4	97.98	13	11 26 25.88	9 13 58.7
14	9 38 29.05	18 55 51.6	99.20	14	11 28 42.07	8 59 27.3
15	9 40 48.85	18 45 56.4	100.41	15	11 30 58.23	8 44 51.7
16	9 43 8.55	18 35 53.9	101.62	16	11 33 14.35	8 30 12.2
17	9 45 28.16	18 25 44.1	102.82	17	11 35 30.45	8 15 28.7
18	9 47 47.68	18 15 27.2	104.01	18	11 37 46.52	8 0 41.5
19	9 50 7.10	18 5 3.2	105.19	19	11 40 2.57	7 45 50.4
20	9 52 26.43	17 54 32.0	106.36	20	11 42 18.60	7 30 55.8
21	9 54 45.67	17 43 53.9	107.53	21	11 44 34.62	7 15 57.6
22	9 57 4.82	17 33 8.7	108.68	22	11 46 50.62	7 0 55.9
23	9 59 23.87	17 22 16.6	109.83	23	11 49 6.61	6 45 50.8
24	10 1 42.83	N. 17 11 17.7		24	11 51 22.59	N. 6 30 42.3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 29.				FRIDAY 31.		
^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
1 51 22.59	N. 6 30 42.5	151.92	0	13 41 8.01	S. 6 6 37.1	156.66
1 53 38.57	6 15 31.0	152.43	1	13 43 27.83	6 22 17.1	156.30
1 55 54.55	6 0 16.4	152.93	2	13 45 47.81	6 37 54.9	155.91
1 58 10.53	5 44 58.8	153.41	3	13 48 7.95	6 53 30.4	155.50
2 0 26.51	5 29 38.3	153.88	4	13 50 28.27	7 9 3.4	155.07
2 2 42.51	5 14 15.0	154.33	5	13 52 48.75	7 24 33.8	154.62
2 4 58.52	4 58 49.1	154.76	6	13 55 9.41	7 40 1.5	154.16
2 7 14.54	4 43 20.5	155.18	7	13 57 30.23	7 55 26.5	153.67
2 9 30.58	4 27 49.4	155.58	8	13 59 51.24	8 10 48.5	153.16
2 11 46.65	4 12 16.0	155.96	9	14 2 12.43	8 26 7.5	152.64
2 14 2.74	3 56 40.2	156.32	10	14 4 33.81	8 41 23.3	152.09
2 16 18.86	3 41 2.3	156.67	11	14 6 55.37	8 56 35.8	151.52
2 18 35.01	3 25 22.2	157.01	12	14 9 17.11	9 11 45.0	150.94
2 20 51.20	3 9 40.2	157.32	13	14 11 39.05	9 26 50.6	150.34
2 23 7.43	2 53 56.3	157.62	14	14 14 1.17	9 41 52.7	149.71
2 25 23.70	2 38 10.6	157.89	15	14 16 23.50	9 56 51.0	149.07
2 27 40.02	2 22 23.2	158.15	16	14 18 46.02	10 11 45.4	148.40
2 29 56.38	2 6 34.3	158.40	17	14 21 8.73	10 26 35.8	147.72
2 32 12.81	1 50 43.9	158.62	18	14 23 31.65	10 41 22.1	147.01
2 34 29.29	1 34 52.2	158.83	19	14 25 54.77	10 56 4.1	146.29
2 36 45.83	1 18 59.2	159.02	20	14 28 18.09	11 10 41.8	145.54
2 39 2.43	1 3 5.1	159.19	21	14 30 41.61	11 25 15.1	144.78
2 41 19.11	0 47 9.9	159.35	22	14 33 5.34	11 39 43.7	143.99
2 43 35.85	N. 0 31 13.8	159.48	23	14 35 29.28	S. 11 54 7.7	143.19
THURSDAY 30.				SATURDAY, NOV. 1.		
2 45 52.67	N. 0 15 17.0	159.60	0	14 37 53.42	S. 12 8 26.8	
2 48 9.57	S. 0 0 40.6	159.69				
2 50 26.55	0 16 38.8	159.77				
2 52 43.62	0 32 37.4	159.83				
2 55 0.78	0 48 36.4	159.88				
2 57 18.03	1 4 35.7	159.90				
2 59 35.38	1 20 35.1	159.90				
3 1 52.83	1 36 34.5	159.89				
3 4 10.38	1 52 33.8	159.86				
3 6 28.04	2 8 33.0	159.80				
3 8 45.80	2 24 31.8	159.73				
3 11 3.68	2 40 30.2	159.64				
3 13 21.68	2 56 28.0	159.54				
3 15 39.80	3 12 25.3	159.41				
3 17 58.04	3 28 21.7	159.26				
3 20 16.41	3 44 17.2	159.09				
3 22 34.91	4 0 11.8	158.90				
3 24 53.54	4 16 5.2	158.69				
3 27 12.32	4 31 57.3	158.46				
3 29 31.23	4 47 48.1	158.21				
3 31 50.29	5 3 37.3	157.94				
3 34 9.49	5 19 25.0	157.66				
3 36 28.84	5 35 10.9	157.35				
3 38 48.35	5 50 55.0	157.02				
3 41 8.01	S. 6 6 37.1					

PHASES OF THE MOON.

● New Moon.....	^d ^h ^m
☾ First Quarter ...	9 4 0.7
○ Full Moon.....	17 4 26.5
☾ Last Quarter ...	25 4 28.2
● New Moon.....	31 20 7.7

☾ Perigee.....	^d ^h
☾ Apogee.....	16 22
☾ Perigee.....	31 9

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .
1	Jupiter	W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101 1
	Mars	W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75 52
	Pollux	W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61 26
3	Venus	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
4	SUN	W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27 29
	Venus	E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20 22
	α Aquilæ	E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80 30
	Fomalhaut	E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112 43
5	SUN	W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41 14
	Fomalhaut	E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98 28
	α Pegasi	E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115 17
6	SUN	W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54 41
	Fomalhaut	E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84 32
	α Pegasi	E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102 14
7	SUN	W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67 43
	Venus	W.	- - -	- - -	- - -	- - -	19 42 11	2845	21 15
	Fomalhaut	E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71 3
	α Pegasi	E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89 26
8	SUN	W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80 19
	Venus	W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33 38
	Fomalhaut	E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58 5
	α Pegasi	E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77 3
9	SUN	W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92 29
	Venus	W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45 43
	Antares	W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41 6
	Fomalhaut	E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45 45
	α Pegasi	E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65 11
	α Arietis	E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106 55
10	SUN	W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104 18
	Venus	W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57 28
	Antares	W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53 49
	α Arietis	E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94 27
11	SUN	W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115 47
	Venus	W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68 57
	Antares	W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66 16
	α Arietis	E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82 17
	Aldebaran	E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112 56
	Jupiter	E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117 24
12	Venus	W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80 12
	Antares	W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78 29
	α Arietis	E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70 21
	Aldebaran	E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100 41
	Jupiter	E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105 5
13	Venus	W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91 16
	Antares	W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90 32

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			° ' "		° ' "		° ' "		° ' "	
1	Jupiter	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Mars	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Pollux	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
3	Venus	E.	32 28 21	2346	30 43 29	2359	28 58 55	2373	27 14 42	2390
4	SUN	W.	29 13 0	2396	30 56 40	2403	32 40 11	2410	34 23 31	2419
	Venus	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	α Aquilæ	E.	78 56 18	2816	77 22 11	2853	75 48 33	2863	74 15 27	2891
	Fomalhaut	E.	110 55 57	2243	109 8 33	2250	107 21 20	2257	105 34 17	2266
5	SUN	W.	42 56 36	2477	44 38 21	2492	46 19 45	2507	48 0 49	2522
	Fomalhaut	E.	96 42 42	2323	94 57 16	2337	93 12 10	2351	91 27 25	2367
	α Pegasi	E.	113 39 36	2632	112 1 25	2635	110 23 18	2640	108 45 17	2645
6	SUN	W.	56 20 35	2606	57 59 22	2624	59 37 44	2641	61 15 43	2660
	Fomalhaut	E.	82 49 32	2453	81 7 13	2472	79 25 20	2492	77 43 55	2512
	α Pegasi	E.	100 37 44	2694	99 0 56	2708	97 24 26	2722	95 48 15	2736
7	SUN	W.	69 19 23	2753	70 54 53	2772	72 29 58	2791	74 4 38	2810
	Venus	W.	22 49 4	2854	24 22 22	2860	25 55 32	2869	27 28 31	2878
	Fomalhaut	E.	69 24 0	2619	67 45 31	2641	66 7 32	2666	64 30 6	2689
	α Pegasi	E.	87 52 34	2823	86 18 36	2842	84 45 3	2862	83 11 56	2883
8	SUN	W.	81 51 55	2902	83 24 11	2920	84 56 4	2938	86 27 35	2956
	Venus	W.	35 9 45	2944	36 41 8	2958	38 12 13	2973	39 43 0	2988
	Fomalhaut	E.	56 31 5	2818	54 57 0	2846	53 23 32	2874	51 50 40	2905
	α Pegasi	E.	75 33 10	2995	74 2 51	3020	72 33 3	3044	71 3 45	3070
9	SUN	W.	93 59 37	3041	95 28 59	3058	96 58 0	3074	98 26 41	3089
	Venus	W.	47 12 14	3062	48 41 10	3077	50 9 48	3092	51 38 8	3105
	Antares	W.	42 43 0	2726	44 19 6	2738	45 54 55	2751	47 30 27	2764
	Fomalhaut	E.	44 16 23	3075	42 47 43	3115	41 19 52	3157	39 52 51	3203
	α Pegasi	E.	63 45 27	3210	62 19 30	3242	60 54 11	3274	59 29 29	3307
	α Arietis	E.	105 21 29	2811	103 47 16	2825	102 13 21	2838	100 39 43	2851
10	SUN	W.	105 45 28	3164	107 12 20	3178	108 38 56	3192	110 5 15	3204
	Venus	W.	58 55 33	3173	60 22 14	3187	61 48 39	3199	63 14 50	3211
	Antares	W.	55 24 4	2824	56 58 1	2836	58 31 42	2847	60 5 9	2858
	α Arietis	E.	92 55 43	2916	91 23 44	2928	89 52 0	2941	88 20 33	2953
11	SUN	W.	117 13 4	3266	118 37 55	3277	120 2 33	3288	121 26 58	3300
	Venus	W.	70 22 16	3266	71 47 7	3277	73 11 45	3287	74 36 12	3297
	Antares	W.	67 48 55	2909	69 21 2	2920	70 52 56	2929	72 24 38	2937
	α Arietis	E.	80 47 1	3011	79 17 2	3022	77 47 17	3034	76 17 46	3044
	Aldebaran	E.	111 23 40	2901	109 51 22	2909	108 19 15	2920	106 47 21	2929
	Jupiter	E.	115 51 28	2873	114 18 34	2883	112 45 53	2892	111 13 24	2901
12	Venus	W.	81 35 46	3339	82 59 12	3347	84 22 29	3354	85 45 38	3362
	Antares	W.	80 0 28	2978	81 31 8	2985	83 1 39	2993	84 32 1	2999
	α Arietis	E.	68 53 31	3098	67 25 20	3109	65 57 21	3119	64 29 35	3130
	Aldebaran	E.	99 10 38	2970	97 39 47	2978	96 9 6	2985	94 38 34	2991
	Jupiter	E.	103 33 44	2942	102 2 18	2950	100 31 2	2957	98 59 55	2963
13	Venus	W.	92 39 27	3392	94 1 53	3398	95 24 12	3402	96 46 26	3407
	Antares	W.	92 1 52	3029	93 31 29	3035	95 0 59	3039	96 30 23	3044

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o
1	Jupiter	W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101
	Mars	W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75
	Pollux	W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61
3	Venus	E.	- - -	- -	- - -	- -	- - -	- -	-
4	SUN	W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27
	Venus	E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20
	α Aquilæ	E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80
	Fomalhaut	E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112
5	SUN	W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41
	Fomalhaut	E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98
	α Pegasi	E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115
6	SUN	W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54
	Fomalhaut	E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84
	α Pegasi	E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102
7	SUN	W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67
	Venus	W.	- - -	- -	- - -	- -	19 42 11	2845	21
	Fomalhaut	E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71
	α Pegasi	E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89
8	SUN	W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80
	Venus	W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33
	Fomalhaut	E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58
	α Pegasi	E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77
9	SUN	W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92
	Venus	W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45
	Antares	W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41
	Fomalhaut	E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45
	α Pegasi	E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65
	α Arietis	E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106
10	SUN	W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104
	Venus	W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57
	Antares	W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53
	α Arietis	E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94
11	SUN	W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115
	Venus	W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68
	Antares	W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66
	α Arietis	E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82
	Aldebaran	E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112
	Jupiter	E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117
12	Venus	W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80
	Antares	W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78
	α Arietis	E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70
	Aldebaran	E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100
	Jupiter	E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105
13	Venus	W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91
	Antares	W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90

MEAN TIME.

LUNAR DISTANCES.

Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
	^h ^m ^s		^h ^m ^s		^h ^m ^s		^h ^m ^s	
Jupiter W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
Mars W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
Pollux W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
Venus E.	32 28 21	2346	30 43 29	2359	28 58 55	2373	27 14 42	2390
SUN W.	29 13 0	2396	30 56 40	2403	32 40 11	2410	34 23 31	2419
Venus E.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
α Aquilæ E.	78 56 18	2816	77 22 11	2853	75 48 33	2863	74 15 27	2891
Fomalhaut E.	110 55 57	2243	109 8 33	2250	107 21 20	2257	105 34 17	2266
SUN W.	42 56 36	2477	44 38 21	2492	46 19 45	2507	48 0 49	2522
Fomalhaut E.	96 42 42	2323	94 57 16	2337	93 12 10	2351	91 27 25	2367
α Pegasi E.	113 39 36	2632	112 1 25	2635	110 23 18	2640	108 45 17	2645
SUN W.	56 20 35	2606	57 59 22	2624	59 37 44	2641	61 15 43	2660
Fomalhaut E.	82 49 32	2453	81 7 13	2472	79 25 20	2492	77 43 55	2512
α Pegasi E.	100 37 44	2694	99 0 56	2708	97 24 26	2722	95 48 15	2736
SUN W.	69 19 23	2753	70 54 53	2772	72 29 58	2791	74 4 38	2810
Venus W.	22 49 4	2854	24 22 22	2860	25 55 32	2869	27 28 31	2878
Fomalhaut E.	69 24 0	2619	67 45 31	2641	66 7 32	2666	64 30 6	2689
α Pegasi E.	87 52 34	2823	86 18 36	2842	84 45 3	2862	83 11 56	2883
SUN W.	81 51 55	2902	83 24 11	2920	84 56 4	2938	86 27 35	2956
Venus W.	35 9 45	2944	36 41 8	2958	38 12 13	2973	39 43 0	2988
Fomalhaut E.	56 31 5	2818	54 57 0	2846	53 23 32	2874	51 50 40	2905
α Pegasi E.	75 33 10	2995	74 2 51	3020	72 33 3	3044	71 3 45	3070
SUN W.	93 59 37	3041	95 28 59	3058	96 58 0	3074	98 26 41	3089
Venus W.	47 12 14	3062	48 41 10	3077	50 9 48	3092	51 38 8	3105
Antares W.	42 43 0	2726	44 19 6	2738	45 54 55	2751	47 30 27	2764
Fomalhaut E.	44 16 23	3075	42 47 43	3115	41 19 52	3157	39 52 51	3203
α Pegasi E.	63 45 27	3210	62 19 30	3242	60 54 11	3274	59 29 29	3307
α Arietis E.	105 21 29	2811	103 47 16	2825	102 13 21	2838	100 39 43	2851
SUN W.	105 45 28	3164	107 12 20	3178	108 38 56	3192	110 5 15	3204
Venus W.	58 55 33	3173	60 22 14	3187	61 48 39	3199	63 14 50	3211
Antares W.	55 24 4	2824	56 58 1	2836	58 31 42	2847	60 5 9	2858
α Arietis E.	92 55 43	2916	91 23 44	2928	89 52 0	2941	88 20 33	2953
SUN W.	117 13 4	3266	118 37 55	3277	120 2 33	3288	121 26 58	3300
Venus W.	70 22 16	3266	71 47 7	3277	73 11 45	3287	74 36 12	3297
Antares W.	67 48 55	2909	69 21 2	2920	70 52 56	2929	72 24 38	2937
α Arietis E.	80 47 1	3011	79 17 2	3022	77 47 17	3034	76 17 46	3044
Aldebaran E.	111 23 40	2901	109 51 22	2909	108 19 15	2920	106 47 21	2929
Jupiter E.	115 51 28	2873	114 18 34	2883	112 45 53	2892	111 13 24	2901
Venus W.	81 35 46	3339	82 59 12	3347	84 22 29	3354	85 45 38	3362
Antares W.	80 0 28	2978	81 31 8	2985	83 1 39	2993	84 32 1	2999
α Arietis E.	68 53 31	3098	67 25 20	3109	65 57 21	3119	64 29 35	3130
Aldebaran E.	99 10 38	2970	97 39 47	2978	96 9 6	2985	94 38 34	2991
Jupiter E.	103 33 44	2942	102 2 18	2950	100 31 2	2957	98 59 55	2963
Venus W.	92 39 27	3392	94 1 53	3398	95 24 12	3402	96 46 26	3407
Antares W.	92 1 52	3029	93 31 29	3035	95 0 59	3039	96 30 23	3044

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX
			° ' "		° ' "		° ' "		°
1	Jupiter	W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101
	Mars	W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75 5
	Pollux	W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61 2
3	Venus	E.	- - -	- -	- - -	- -	- - -	- -	- -
4	SUN	W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27 2
	Venus	E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20 2
	α Aquilæ	E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80 3
	Fomalhaut	E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112 4
5	SUN	W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41 1
	Fomalhaut	E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98 4
	α Pegasi	E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115 1
6	SUN	W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54 4
	Fomalhaut	E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84 3
	α Pegasi	E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102 1
7	SUN	W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67 4
	Venus	W.	- - -	- -	- - -	- -	19 42 11	2845	21 1
	Fomalhaut	E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71
	α Pegasi	E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89 2
8	SUN	W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80 1
	Venus	W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33 3
	Fomalhaut	E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58
	α Pegasi	E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77
9	SUN	W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92 2
	Venus	W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45 4
	Antares	W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41
	Fomalhaut	E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45 4
	α Pegasi	E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65 1
	α Arietis	E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106 5
10	SUN	W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104 1
	Venus	W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57 2
	Antares	W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53 4
	α Arietis	E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94 2
11	SUN	W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115 4
	Venus	W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68 5
	Antares	W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66 1
	α Arietis	E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82 1
	Aldebaran	E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112 5
	Jupiter	E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117 2
12	Venus	W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80 1
	Antares	W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78 2
	α Arietis	E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70 2
	Aldebaran	E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100 4
	Jupiter	E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105
13	Venus	W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91 1
	Antares	W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90 3

MEAN TIME.

LUNAR DISTANCES.

Time and Position.	Star's Name and Position.	Midnight.			P.L. of diff.	XV ^h .			P.L. of diff.	XVIII ^h .			P.L. of diff.	XXI ^h .			P.L. of diff.
		°	'	"		°	'	"		°	'	"		°	'	"	
	Jupiter W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mars W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pollux W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Venus E.	32	28	21	2346	30	43	29	2359	28	58	55	2373	27	14	42	2390
	SUN W.	29	13	0	2396	30	56	40	2403	32	40	11	2410	34	23	31	2419
	Venus E.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	α Aquilæ E.	78	56	18	2816	77	22	11	2853	75	48	33	2863	74	15	27	2891
	Fomalhaut E.	110	55	57	2243	109	8	33	2250	107	21	20	2257	105	34	17	2266
	SUN W.	42	56	36	2477	44	38	21	2492	46	19	45	2507	48	0	49	2522
	Fomalhaut E.	96	42	42	2323	94	57	16	2337	93	12	10	2351	91	27	25	2367
	α Pegasi E.	113	39	36	2632	112	1	25	2635	110	23	18	2640	108	45	17	2645
	SUN W.	56	20	35	2606	57	59	22	2624	59	37	44	2641	61	15	43	2660
	Fomalhaut E.	82	49	32	2453	81	7	13	2472	79	25	20	2492	77	43	55	2512
	α Pegasi E.	100	37	44	2694	99	0	56	2708	97	24	26	2722	95	48	15	2736
	SUN W.	69	19	23	2753	70	54	53	2772	72	29	58	2791	74	4	38	2810
	Venus W.	22	49	4	2854	24	22	22	2860	25	55	32	2869	27	28	31	2878
	Fomalhaut E.	69	24	0	2619	67	45	31	2641	66	7	32	2666	64	30	6	2689
	α Pegasi E.	87	52	34	2823	86	18	36	2842	84	45	3	2862	83	11	56	2883
8	SUN W.	81	51	55	2902	83	24	11	2920	84	56	4	2938	86	27	35	2956
	Venus W.	35	9	45	2944	36	41	8	2958	38	12	13	2973	39	43	0	2988
	Fomalhaut E.	56	31	5	2818	54	57	0	2846	53	23	32	2874	51	50	40	2905
	α Pegasi E.	75	33	10	2995	74	2	51	3020	72	33	3	3044	71	3	45	3070
9	SUN W.	93	59	37	3041	95	28	59	3058	96	58	0	3074	98	26	41	3089
	Venus W.	47	12	14	3062	48	41	10	3077	50	9	48	3092	51	38	8	3105
	Antares W.	42	43	0	2726	44	19	6	2738	45	54	55	2751	47	30	27	2764
	Fomalhaut E.	44	16	23	3075	42	47	43	3115	41	19	52	3157	39	52	51	3203
	α Pegasi E.	63	45	27	3210	62	19	30	3242	60	54	11	3274	59	29	29	3307
	α Arietis E.	105	21	29	2811	103	47	16	2825	102	13	21	2838	100	39	43	2851
0	SUN W.	105	45	28	3164	107	12	20	3178	108	38	56	3192	110	5	15	3204
	Venus W.	58	55	33	3173	60	22	14	3187	61	48	39	3199	63	14	50	3211
	Antares W.	55	24	4	2824	56	58	1	2836	58	31	42	2847	60	5	9	2858
	α Arietis E.	92	55	43	2916	91	23	44	2928	89	52	0	2941	88	20	33	2953
1	SUN W.	117	13	4	3266	118	37	55	3277	120	2	33	3288	121	26	58	3300
	Venus W.	70	22	16	3266	71	47	7	3277	73	11	45	3287	74	36	12	3297
	Antares W.	67	48	55	2909	69	21	2	2920	70	52	56	2929	72	24	38	2937
	α Arietis E.	80	47	1	3011	79	17	2	3022	77	47	17	3034	76	17	46	3044
	Aldebaran E.	111	23	40	2901	109	51	22	2909	108	19	15	2920	106	47	21	2929
	Jupiter E.	115	51	28	2873	114	18	34	2883	112	45	53	2892	111	13	24	2901
2	Venus W.	81	35	46	3339	82	59	12	3347	84	22	29	3354	85	45	38	3362
	Antares W.	80	0	28	2978	81	31	8	2985	83	1	39	2993	84	32	1	2999
	α Arietis E.	68	53	31	3098	67	25	20	3109	65	57	21	3119	64	29	35	3130
	Aldebaran E.	99	10	38	2970	97	39	47	2978	96	9	6	2985	94	38	34	2991
	Jupiter E.	103	33	44	2942	102	2	18	2950	100	31	2	2957	98	59	55	2963
3	Venus W.	92	39	27	3392	94	1	53	3398	95	24	12	3402	96	46	26	3407
	Antares W.	92	1	52	3029	93	31	29	3035	95	0	59	3039	96	30	23	3044

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o
1	Jupiter	W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101
	Mars	W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75 5
	Pollux	W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61 2
3	Venus	E.	- - -	- -	- - -	- -	- - -	- -	- -
4	SUN	W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27 5
	Venus	E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20 5
	α Aquilæ	E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80 5
	Fomalhaut	E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112 4
5	SUN	W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41 1
	Fomalhaut	E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98 5
	α Pegasi	E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115 5
6	SUN	W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54 5
	Fomalhaut	E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84 5
	α Pegasi	E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102 5
7	SUN	W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67 5
	Venus	W.	- - -	- -	- - -	- -	19 42 11	2845	21 5
	Fomalhaut	E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71 5
	α Pegasi	E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89 5
8	SUN	W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80 5
	Venus	W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33 5
	Fomalhaut	E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58 5
	α Pegasi	E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77 5
9	SUN	W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92 5
	Venus	W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45 5
	Antares	W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41 5
	Fomalhaut	E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45 5
	α Pegasi	E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65 5
	α Arietis	E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106 5
10	SUN	W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104 5
	Venus	W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57 5
	Antares	W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53 5
	α Arietis	E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94 5
11	SUN	W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115 5
	Venus	W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68 5
	Antares	W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66 5
	α Arietis	E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82 5
	Aldebaran	E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112 5
	Jupiter	E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117 5
12	Venus	W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80 5
	Antares	W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78 5
	α Arietis	E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70 5
	Aldebaran	E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100 5
	Jupiter	E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105 5
13	Venus	W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91 5
	Antares	W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90 5

MEAN TIME.

LUNAR DISTANCES.

Those and	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			° ' "		° ' "		° ' "		° ' "	
	Jupiter	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Mars	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Pollux	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Venus	E.	32 28 21	2346	30 43 29	2359	28 58 55	2373	27 14 42	2390
	SUN	W.	29 13 0	2396	30 56 40	2403	32 40 11	2410	34 23 31	2419
	Venus	E.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	α Aquilæ	E.	78 56 18	2816	77 22 11	2823	75 48 33	2863	74 15 27	2891
	Fomalhaut	E.	110 55 57	2243	109 8 33	2250	107 21 20	2257	105 34 17	2266
	SUN	W.	42 56 36	2477	44 38 21	2492	46 19 45	2507	48 0 49	2522
	Fomalhaut	E.	96 42 42	2323	94 57 16	2337	93 12 10	2351	91 27 25	2367
	α Pegasi	E.	113 39 36	2632	112 1 25	2635	110 23 18	2640	108 45 17	2645
	SUN	W.	56 20 35	2606	57 59 22	2624	59 37 44	2641	61 15 43	2660
	Fomalhaut	E.	82 49 32	2453	81 7 13	2472	79 25 20	2492	77 43 55	2512
	α Pegasi	E.	100 37 44	2694	99 0 56	2708	97 24 26	2722	95 48 15	2736
	SUN	W.	69 19 23	2753	70 54 53	2772	72 29 58	2791	74 4 38	2810
	Venus	W.	22 49 4	2854	24 22 22	2860	25 55 32	2869	27 28 31	2878
	Fomalhaut	E.	69 24 0	2619	67 45 31	2641	66 7 32	2666	64 30 6	2689
	α Pegasi	E.	87 52 34	2823	86 18 36	2842	84 45 3	2862	83 11 56	2883
8	SUN	W.	81 51 55	2902	83 24 11	2920	84 56 4	2938	86 27 35	2956
	Venus	W.	35 9 45	2944	36 41 8	2958	38 12 13	2973	39 43 0	2988
	Fomalhaut	E.	56 31 5	2818	54 57 0	2846	53 23 32	2874	51 50 40	2905
	α Pegasi	E.	75 33 10	2995	74 2 51	3020	72 33 3	3044	71 3 45	3070
9	SUN	W.	93 59 37	3041	95 28 59	3058	96 58 0	3074	98 26 41	3089
	Venus	W.	47 12 14	3062	48 41 10	3077	50 9 48	3092	51 38 8	3105
	Antares	W.	42 43 0	2726	44 19 6	2738	45 54 55	2751	47 30 27	2764
	Fomalhaut	E.	44 16 23	3075	42 47 43	3115	41 19 52	3157	39 52 51	3203
	α Pegasi	E.	63 45 27	3210	62 19 30	3242	60 54 11	3274	59 29 29	3307
	α Arietis	E.	105 21 29	2811	103 47 16	2825	102 13 21	2838	100 39 43	2851
0	SUN	W.	105 45 28	3164	107 12 20	3178	108 38 56	3192	110 5 15	3204
	Venus	W.	58 55 33	3173	60 22 14	3187	61 48 39	3199	63 14 50	3211
	Antares	W.	55 24 4	2824	56 58 1	2836	58 31 42	2847	60 5 9	2858
	α Arietis	E.	92 55 43	2916	91 23 44	2928	89 52 0	2941	88 20 33	2953
1	SUN	W.	117 13 4	3266	118 37 55	3277	120 2 33	3288	121 26 58	3300
	Venus	W.	70 22 16	3266	71 47 7	3277	73 11 45	3287	74 36 12	3297
	Antares	W.	67 48 55	2969	69 21 2	2970	70 52 56	2929	72 24 38	2937
	α Arietis	E.	80 47 1	3011	79 17 2	3022	77 47 17	3034	76 17 46	3044
	Aldebaran	E.	111 23 40	2901	109 51 22	2909	108 19 15	2920	106 47 21	2929
	Jupiter	E.	115 51 28	2873	114 18 34	2883	112 45 53	2892	111 13 24	2901
2	Venus	W.	81 35 46	3339	82 59 12	3347	84 22 29	3354	85 45 38	3362
	Antares	W.	80 0 28	2978	81 31 8	2985	83 1 39	2993	84 32 1	2999
	α Arietis	E.	68 53 31	3098	67 25 20	3109	65 57 21	3119	64 29 35	3130
	Aldebaran	E.	99 10 38	2972	97 39 47	2978	96 9 6	2985	94 38 34	2991
	Jupiter	E.	103 33 44	2942	102 2 18	2950	100 31 2	2957	98 59 55	2963
3	Venus	W.	92 39 27	3392	94 1 53	3398	95 24 12	3402	96 46 26	3407
	Antares	W.	92 1 52	3029	93 31 29	3035	95 0 59	3039	96 30 23	3044

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	I
		° ' "		° ' "		° ' "		°
1	Jupiter W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101
	Mars W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75
	Pollux W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61
3	Venus E.	- - -	-	- - -	-	- - -	-	-
4	SUN W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27
	Venus E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20
	α Aquilæ E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80
	Fomalhaut E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112
5	SUN W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41
	Fomalhaut E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98
	α Pegasi E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115
6	SUN W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54
	Fomalhaut E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84
	α Pegasi E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102
7	SUN W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67
	Venus W.	- - -	-	- - -	-	19 42 11	2845	21
	Fomalhaut E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71
	α Pegasi E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89
8	SUN W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80
	Venus W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33
	Fomalhaut E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58
	α Pegasi E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77
9	SUN W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92
	Venus W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45
	Antares W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41
	Fomalhaut E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45
	α Pegasi E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65
	α Arietis E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106
10	SUN W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104
	Venus W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57
	Antares W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53
	α Arietis E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94
11	SUN W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115
	Venus W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68
	Antares W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66
	α Arietis E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82
	Aldebaran E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112
	Jupiter E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117
12	Venus W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80
	Antares W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78
	α Arietis E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70
	Aldebaran E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100
	Jupiter E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105
13	Venus W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91
	Antares W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90

MEAN TIME.

LUNAR DISTANCES.

Star's Name and Position.		Midnight.			P. L. of diff.	XV ^h .			P. L. of diff.	XVIII ^h .			P. L. of diff.	XXI ^h .			P. L. of diff.
		°	'	"		°	'	"		°	'	"		°	'	"	
Jupiter	W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ars	W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dlux	W.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
enus	E.	32	28	21	2346	30	43	29	2359	28	58	55	2373	27	14	42	2390
N	W.	29	13	0	2396	30	56	40	2403	32	40	11	2410	34	23	31	2419
enus	E.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aquilæ	E.	78	56	18	2816	77	22	11	2828	75	48	33	2863	74	15	27	2891
omalhaut	E.	110	55	57	2243	109	8	33	2250	107	21	20	2257	105	34	17	2266
N	W.	42	56	36	2477	44	38	21	2492	46	19	45	2507	48	0	49	2522
omalhaut	E.	96	42	42	2323	94	57	16	2337	93	12	10	2351	91	27	25	2367
Pegasi	E.	113	39	36	2632	112	1	25	2635	110	23	18	2640	108	45	17	2645
N	W.	56	20	35	2606	57	59	22	2624	59	37	44	2641	61	15	43	2660
omalhaut	E.	82	49	32	2453	81	7	13	2472	79	25	20	2492	77	43	55	2512
Pegasi	E.	100	37	44	2694	99	0	56	2708	97	24	26	2722	95	48	15	2736
N	W.	69	19	23	2753	70	54	53	2772	72	29	58	2791	74	4	38	2810
enus	W.	22	49	4	2854	24	22	22	2860	25	55	32	2869	27	28	31	2878
omalhaut	E.	69	24	0	2619	67	45	31	2641	66	7	32	2666	64	30	6	2689
Pegasi	E.	87	52	34	2823	86	18	36	2842	84	45	3	2862	83	11	56	2883
N	W.	81	51	55	2902	83	24	11	2920	84	56	4	2938	86	27	35	2956
enus	W.	35	9	45	2944	36	41	8	2958	38	12	13	2973	39	43	0	2988
omalhaut	E.	56	31	5	2818	54	57	0	2846	53	23	32	2874	51	50	40	2905
Pegasi	E.	75	33	10	2995	74	2	51	3020	72	33	3	3044	71	3	45	3070
N	W.	93	59	37	3041	95	28	59	3058	96	58	0	3074	98	26	41	3089
enus	W.	47	12	14	3062	48	41	10	3077	50	9	48	3092	51	38	8	3105
itares	W.	42	43	0	2726	44	19	6	2738	45	54	55	2751	47	30	27	2764
omalhaut	E.	44	16	23	3075	42	47	43	3115	41	19	52	3157	39	52	51	3203
Pegasi	E.	63	45	27	3210	62	19	30	3242	60	54	11	3274	59	29	29	3307
Arietis	E.	105	21	29	2811	103	47	16	2825	102	13	21	2838	100	39	43	2851
N	W.	105	45	28	3164	107	12	20	3178	108	38	56	3192	110	5	15	3204
enus	W.	58	55	33	3173	60	22	14	3187	61	48	39	3199	63	14	50	3211
itares	W.	55	24	4	2824	56	58	1	2836	58	31	42	2847	60	5	9	2858
Arietis	E.	92	55	43	2916	91	23	44	2928	89	52	0	2941	88	20	33	2953
N	W.	117	13	4	3266	118	37	55	3277	120	2	33	3288	121	26	58	3300
enus	W.	70	22	16	3266	71	47	7	3277	73	11	45	3287	74	36	12	3297
itares	W.	67	48	55	2909	69	21	2	2920	70	52	56	2929	72	24	38	2937
Arietis	E.	80	47	1	3011	79	17	2	3022	77	47	17	3034	76	17	46	3044
debaran	E.	111	23	40	2901	109	51	22	2909	108	19	15	2920	106	47	21	2929
piter	E.	115	51	28	2873	114	18	34	2883	112	45	53	2892	111	13	24	2901
enus	W.	81	35	46	3339	82	59	12	3347	84	22	29	3354	85	45	38	3362
itares	W.	80	0	28	2978	81	31	8	2985	83	1	39	2993	84	32	1	2999
Arietis	E.	68	53	31	3098	67	25	20	3109	65	57	21	3119	64	29	35	3130
debaran	E.	99	10	38	2970	97	39	47	2978	96	9	6	2985	94	38	34	2991
piter	E.	103	33	44	2942	102	2	18	2950	100	31	2	2957	98	59	55	2963
enus	W.	92	39	27	3392	94	1	53	3398	95	24	12	3402	96	46	26	3407
itares	W.	92	1	52	3029	93	31	29	3035	95	0	59	3039	96	30	23	3044

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o
1	Jupiter	W.	95 22 58	2034	97 15 39	2024	99 8 36	2014	101
	Mars	W.	70 24 29	2177	72 13 32	2165	74 2 52	2155	75
	Pollux	W.	55 48 36	2051	57 40 51	2041	59 33 22	2031	61
3	Venus	E.	- - -	- -	- - -	- -	- - -	- -	-
4	SUN	W.	22 17 57	2395	24 1 39	2391	25 45 26	2391	27
	Venus	E.	25 30 53	2410	23 47 33	2434	22 4 47	2462	20
	α Aquilæ	E.	85 16 45	2747	83 41 8	2761	82 5 49	2778	80
	Fomalhaut	E.	118 6 25	2231	116 18 44	2232	114 31 4	2234	112
5	SUN	W.	36 6 39	2429	37 49 33	2440	39 32 11	2451	41
	Fomalhaut	E.	103 47 27	2275	102 0 51	2286	100 14 31	2298	98
	α Pegasi	E.	120 11 57	2643	118 34 1	2637	116 55 57	2633	115
6	SUN	W.	49 41 31	2538	51 21 52	2555	53 1 49	2571	54
	Fomalhaut	E.	89 43 3	2382	87 59 3	2400	86 15 28	2417	84
	α Pegasi	E.	107 7 23	2652	105 29 39	2661	103 52 7	2671	102
7	SUN	W.	62 53 17	2678	64 30 26	2697	66 7 10	2716	67
	Venus	W.	- - -	- -	- - -	- -	19 42 11	2845	21
	Fomalhaut	E.	76 2 58	2532	74 22 29	2553	72 42 30	2574	71
	α Pegasi	E.	94 12 23	2752	92 36 52	2769	91 1 43	2786	89
8	SUN	W.	75 38 53	2828	77 12 45	2847	78 46 12	2866	80
	Venus	W.	29 1 18	2890	30 33 49	2902	32 6 5	2916	33
	Fomalhaut	E.	62 53 11	2714	61 16 49	2738	59 41 0	2764	58
	α Pegasi	E.	81 39 15	2905	80 7 2	2926	78 35 16	2948	77
9	SUN	W.	87 58 43	2974	89 29 29	2991	90 59 53	3008	92
	Venus	W.	41 13 28	3003	42 43 37	3018	44 13 28	3033	45
	Antares	W.	36 15 53	2676	37 53 5	2689	39 30 0	2702	41
	Fomalhaut	E.	50 18 27	2935	48 46 53	2968	47 16 0	3002	45
	α Pegasi	E.	69 34 59	3097	68 6 46	3124	66 39 5	3152	65
	α Arietis	E.	111 41 13	2759	110 5 51	2772	108 30 46	2785	106
10	SUN	W.	99 55 4	3105	101 23 7	3120	102 50 52	3135	104
	Venus	W.	53 6 11	3120	54 33 56	3134	56 1 25	3148	57
	Antares	W.	49 5 42	2776	50 40 42	2789	52 15 25	2800	53
	α Arietis	E.	99 6 21	2865	97 33 17	2877	96 0 29	2891	94
11	SUN	W.	111 31 19	3218	112 57 7	3231	114 22 40	3242	115
	Venus	W.	64 40 46	3223	66 6 28	3234	67 31 57	3245	68
	Antares	W.	61 38 22	2869	63 11 20	2880	64 44 5	2890	66
	α Arietis	E.	86 49 21	2965	85 18 24	2976	83 47 41	2989	82
	Aldebaran	E.	117 35 6	2859	116 1 54	2869	114 28 56	2880	112
	Jupiter	E.	122 5 19	2830	120 31 30	2841	118 57 55	2852	117
12	Venus	W.	76 0 27	3306	77 24 32	3314	78 48 27	3324	80
	Antares	W.	73 56 10	2946	75 27 30	2955	76 58 39	2962	78
	α Arietis	E.	74 48 28	3056	73 19 24	3066	71 50 33	3077	70
	Aldebaran	E.	105 15 39	2938	103 44 8	2946	102 12 48	2954	100
	Jupiter	E.	109 41 6	2910	108 9 0	2918	106 37 4	2927	105
13	Venus	W.	87 8 38	3368	88 31 31	3375	89 54 16	3380	91
	Antares	W.	86 2 15	3006	87 32 21	3012	89 2 19	3018	90

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			° ' "		° ' "		° ' "		° ' "	
1	Jupiter	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Mars	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	Pollux	W.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
3	Venus	E.	32 28 21	2346	30 43 29	2359	28 58 55	2373	27 14 42	2390
4	SUN	W.	29 13 0	2396	30 56 40	2403	32 40 11	2410	34 23 31	2419
	Venus	E.	- - -	- -	- - -	- -	- - -	- -	- - -	- -
	α Aquilæ	E.	78 56 18	2816	77 22 11	2858	75 48 33	2863	74 15 27	2891
	Fomalhaut	E.	110 55 57	2243	109 8 33	2250	107 21 20	2257	105 34 17	2266
5	SUN	W.	42 56 36	2477	44 38 21	2492	46 19 45	2507	48 0 49	2522
	Fomalhaut	E.	96 42 42	2323	94 57 16	2337	93 12 10	2351	91 27 25	2367
	α Pegasi	E.	113 39 36	2632	112 1 25	2635	110 23 18	2640	108 45 17	2645
6	SUN	W.	56 20 35	2606	57 59 22	2624	59 37 44	2641	61 15 43	2660
	Fomalhaut	E.	82 49 32	2453	81 7 13	2472	79 25 20	2492	77 43 55	2512
	α Pegasi	E.	100 37 44	2694	99 0 56	2708	97 24 26	2722	95 48 15	2736
7	SUN	W.	69 19 23	2753	70 54 53	2772	72 29 58	2791	74 4 38	2810
	Venus	W.	22 49 4	2854	24 22 22	2860	25 55 32	2869	27 28 31	2878
	Fomalhaut	E.	69 24 0	2619	67 45 31	2641	66 7 32	2666	64 30 6	2689
	α Pegasi	E.	87 52 34	2823	86 18 36	2842	84 45 3	2862	83 11 56	2883
8	SUN	W.	81 51 55	2902	83 24 11	2920	84 56 4	2938	86 27 35	2956
	Venus	W.	35 9 45	2944	36 41 8	2958	38 12 13	2973	39 43 0	2988
	Fomalhaut	E.	56 31 5	2818	54 57 0	2846	53 23 32	2874	51 50 40	2905
	α Pegasi	E.	75 33 10	2995	74 2 51	3020	72 33 3	3044	71 3 45	3070
9	SUN	W.	93 59 37	3041	95 28 59	3058	96 58 0	3074	98 26 41	3089
	Venus	W.	47 12 14	3062	48 41 10	3077	50 9 48	3092	51 38 8	3105
	Antares	W.	42 43 0	2726	44 19 6	2738	45 54 55	2751	47 30 27	2764
	Fomalhaut	E.	44 16 23	3075	42 47 43	3115	41 19 52	3157	39 52 51	3203
	α Pegasi	E.	63 45 27	3210	62 19 30	3242	60 54 11	3274	59 29 29	3307
	α Arietis	E.	105 21 29	2811	103 47 16	2825	102 13 21	2838	100 39 43	2851
10	SUN	W.	105 45 28	3164	107 12 20	3178	108 38 56	3192	110 5 15	3204
	Venus	W.	58 55 33	3173	60 22 14	3187	61 48 39	3199	63 14 50	3211
	Antares	W.	55 24 4	2824	56 58 1	2836	58 31 42	2847	60 5 9	2858
	α Arietis	E.	92 55 43	2916	91 23 44	2928	89 52 0	2941	88 20 33	2953
11	SUN	W.	117 13 4	3266	118 37 55	3277	120 2 33	3288	121 26 58	3300
	Venus	W.	70 22 16	3266	71 47 7	3277	73 11 45	3287	74 36 12	3297
	Antares	W.	67 48 55	2909	69 21 2	2920	70 52 56	2929	72 24 38	2937
	α Arietis	E.	80 47 1	3011	79 17 2	3022	77 47 17	3034	76 17 46	3044
	Aldebaran	E.	111 23 40	2901	109 51 22	2909	108 19 15	2920	106 47 21	2929
	Jupiter	E.	115 51 28	2873	114 18 34	2883	112 45 53	2892	111 13 24	2901
12	Venus	W.	81 35 46	3339	82 59 12	3347	84 22 29	3354	85 45 38	3362
	Antares	W.	80 0 28	2978	81 31 8	2985	83 1 39	2993	84 32 1	2999
	α Arietis	E.	68 53 31	3098	67 25 20	3109	65 57 21	3119	64 29 35	3130
	Aldebaran	E.	99 10 38	2970	97 39 47	2978	96 9 6	2985	94 38 34	2991
	Jupiter	E.	103 33 44	2942	102 2 18	2950	100 31 2	2957	98 59 55	2963
13	Venus	W.	92 39 27	3392	94 1 53	3398	95 24 12	3402	96 46 26	3407
	Antares	W.	92 1 52	3029	93 31 29	3035	95 0 59	3039	96 30 23	3044

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
		° ' "		° ' "		° ' "		° ' "	
13	α Arietis E.	63 2 2	3141	61 34 42	3152	60 7 35	3163	58 40	
	Aldebaran E.	93 8 10	2997	91 37 54	3005	90 7 47	3010	88 37	
	Jupiter E.	97 28 56	2969	95 58 5	2976	94 27 22	2981	92 56	
14	Venus W.	98 8 35	3411	99 30 39	3416	100 52 38	3420	102 14	
	Antares W.	97 59 41	3048	99 28 54	3053	100 58 1	3057	102 27	
	Aldebaran E.	81 9 26	3041	79 40 4	3045	78 10 47	3049	76 41	
	Jupiter E.	85 25 24	3011	83 55 25	3014	82 25 30	3018	80 55	
	Mars E.	116 27 15	3177	115 0 39	3182	113 34 8	3186	112 7	
15	Antares W.	109 51 7	3078	111 19 44	3081	112 48 17	3083	114 16	
	Venus W.	109 3 4	3439	110 24 37	3440	111 46 8	3443	113 7	
	α Aquilæ W.	65 40 3	3971	66 52 11	3953	68 4 37	3937	69 17	
	Aldebaran E.	69 16 42	3069	67 47 54	3072	66 19 10	3074	64 50	
	Jupiter E.	73 27 31	3037	71 58 4	3039	70 28 39	3040	68 59	
	Mars E.	104 56 27	3203	103 30 21	3205	102 4 18	3207	100 38	
16	α Aquilæ W.	75 24 14	3864	76 38 10	3855	77 52 16	3847	79 6	
	Fomalhaut W.	40 32 8	3501	41 52 31	3478	43 13 20	3456	44 34	
	Aldebaran E.	57 27 45	3086	55 59 18	3088	54 30 54	3090	53 2	
	Jupiter E.	61 32 51	3049	60 3 39	3049	58 34 27	3050	57 5	
	Mars E.	93 28 37	3215	92 2 45	3215	90 36 54	3215	89 11	
	Pollux E.	101 36 28	3079	100 7 53	3079	98 39 18	3079	97 10	
17	α Aquilæ W.	85 19 12	3816	86 33 58	3813	87 48 47	3811	89 3	
	Fomalhaut W.	51 25 31	3362	52 48 31	3350	54 11 45	3339	55 35	
	Aldebaran E.	45 41 1	3096	44 12 47	3097	42 44 34	3098	41 16	
	Jupiter E.	49 39 22	3049	48 10 10	3049	46 40 58	3048	45 11	
	Mars E.	82 1 47	3214	80 35 54	3213	79 10 0	3213	77 44	
	Pollux E.	89 47 57	3080	88 19 23	3080	86 50 49	3079	85 22	
18	α Aquilæ W.	95 17 58	3813	96 32 47	3817	97 47 32	3820	99 2	
	Fomalhaut W.	62 35 7	3286	63 59 35	3278	65 24 12	3271	66 48	
	Aldebaran E.	33 55 43	3106	32 27 41	3108	30 59 41	3110	29 31	
	Jupiter E.	37 45 18	3040	36 15 55	3038	34 46 29	3036	33 17	
	Mars E.	70 34 8	3203	69 8 3	3200	67 41 54	3198	66 15	
	Pollux E.	77 59 0	3073	76 30 17	3071	75 1 32	3069	73 32	
19	α Aquilæ W.	105 14 18	3858	106 28 20	3867	107 42 13	3879	108 55	
	Fomalhaut W.	73 54 39	3233	75 20 9	3227	76 45 46	3222	78 11	
	α Pegasi W.	57 38 53	3633	58 56 52	3611	60 15 15	3590	61 34	
	Jupiter E.	25 48 57	3020	24 19 9	3017	22 49 17	3013	21 19	
	Mars E.	59 4 1	3181	57 37 29	3178	56 10 53	3174	54 44	
	Pollux E.	66 8 7	3055	64 39 2	3052	63 9 54	3049	61 40	
	Regulus E.	102 10 23	3056	100 41 19	3052	99 12 11	3048	97 42	
20	Fomalhaut W.	85 21 46	3189	86 48 8	3183	88 14 38	3178	89 41	
	α Pegasi W.	68 12 32	3491	69 33 6	3476	70 53 57	3463	72 15	
	Mars E.	47 29 35	3147	46 2 22	3142	44 35 3	3137	43 7	
	Pollux E.	54 13 38	3027	52 43 59	3023	51 14 15	3018	49 44	
	Regulus E.	90 15 43	3024	88 46 0	3019	87 16 11	3014	85 46	
21	Fomalhaut W.	96 55 49	3146	98 23 3	3139	99 50 25	3135	101 17	
	α Pegasi W.	79 3 57	3393	80 26 22	3381	81 49 0	3371	83 11	

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Days of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
13	α Arietis E.	57 14 0	3185	55 47 33	3196	54 21 19	3208	52 55 19	3220
	Aldebaran E.	87 7 53	3022	85 38 7	3026	84 8 27	3032	82 38 54	3036
	Jupiter E.	91 26 17	2993	89 55 55	2998	88 25 39	3002	86 55 29	3006
14	Venus W.	103 36 21	3427	104 58 7	3430	106 19 49	3433	107 41 28	3436
	Antares W.	103 56 1	3065	105 24 53	3068	106 53 42	3072	108 22 26	3074
	Aldebaran E.	75 12 28	3056	73 43 25	3060	72 14 27	3063	70 45 32	3067
	Jupiter E.	79 25 55	3026	77 56 14	3028	76 26 36	3031	74 57 2	3034
	Mars E.	110 41 20	3193	109 15 2	3195	107 48 47	3198	106 22 35	3201
15	Antares W.	115 45 15	3088	117 13 39	3090	118 42 1	3092	120 10 20	3094
	Venus W.	114 29 1	3447	115 50 24	3449	117 11 45	3450	118 33 5	3451
	α Aquilæ W.	70 30 16	3909	71 43 27	3896	72 56 51	3884	74 10 27	3873
	Aldebaran E.	63 21 51	3079	61 53 16	3081	60 24 43	3083	58 56 13	3085
	Jupiter E.	67 29 56	3044	66 0 38	3045	64 31 21	3046	63 2 5	3048
	Mars E.	99 12 18	3209	97 46 20	3212	96 20 25	3212	94 54 30	3214
16	α Aquilæ W.	80 20 51	3834	81 35 18	3827	82 49 52	3823	84 4 30	3819
	Fomalhaut W.	45 56 8	3420	47 18 2	3402	48 40 16	3388	50 2 46	3375
	Aldebaran E.	51 34 11	3092	50 5 51	3093	48 37 33	3094	47 9 16	3096
	Jupiter E.	55 36 5	3050	54 6 54	3050	52 37 43	3051	51 8 33	3050
	Mars E.	87 45 12	3215	86 19 21	3215	84 53 30	3215	83 27 38	3215
	Pollux E.	95 42 10	3080	94 13 36	3081	92 45 3	3081	91 16 30	3081
17	α Aquilæ W.	90 18 30	3809	91 33 23	3809	92 48 16	3810	94 3 8	3812
	Fomalhaut W.	56 58 49	3319	58 22 38	3310	59 46 38	3301	61 10 48	3294
	Aldebaran E.	39 48 11	3101	38 20 2	3101	36 51 54	3103	35 23 48	3104
	Jupiter E.	43 42 31	3046	42 13 15	3045	40 43 58	3043	39 14 39	3042
	Mars E.	76 18 10	3209	74 52 12	3209	73 26 13	3207	72 0 12	3204
	Pollux E.	83 53 38	3077	82 25 0	3077	80 56 22	3075	79 27 42	3074
18	α Aquilæ W.	100 16 51	3829	101 31 23	3835	102 45 49	3843	104 0 7	3850
	Fomalhaut W.	68 13 51	3258	69 38 52	3252	71 4 0	3245	72 29 16	3239
	Aldebaran E.	28 3 50	3118	26 36 3	3121	25 8 19	3127	23 40 42	3134
	Jupiter E.	31 47 30	3032	30 17 57	3030	28 48 21	3026	27 18 41	3023
	Mars E.	64 49 30	3194	63 23 13	3190	61 56 52	3188	60 30 29	3184
	Pollux E.	72 3 54	3065	70 35 2	3062	69 6 6	3060	67 37 8	3058
19	α Aquilæ W.	110 9 23	3904	111 22 39	3918	112 35 41	3933	113 48 27	3948
	Fomalhaut W.	79 37 20	3211	81 3 16	3204	82 29 20	3200	83 55 29	3194
	α Pegasi W.	62 53 5	3555	64 12 29	3536	65 32 13	3521	66 52 14	3507
	Jupiter E.	19 49 20	3006	18 19 15	3002	16 49 4	2998	- - -	- - -
	Mars E.	53 17 27	3166	51 50 37	3162	50 23 42	3157	48 56 41	3153
	Pollux E.	60 11 26	3043	58 42 6	3039	57 12 41	3035	55 43 12	3031
	Regulus E.	96 13 41	3041	94 44 19	3037	93 14 52	3034	91 45 21	3028
20	Fomalhaut W.	91 7 56	3168	92 34 44	3162	94 1 39	3156	95 28 41	3151
	α Pegasi W.	73 36 22	3438	74 57 56	3426	76 19 43	3414	77 41 44	3403
	Mars E.	41 40 6	3124	40 12 26	3119	38 44 40	3112	37 16 45	3106
	Pollux E.	48 14 30	3010	46 44 29	3005	45 14 22	3000	43 44 9	2994
	Regulus E.	84 16 14	3003	82 46 5	2998	81 15 49	2992	79 45 26	2986
21	Fomalhaut W.	102 45 27	3124	104 13 7	3118	105 40 55	3114	107 8 48	3108
	α Pegasi W.	84 34 50	3352	85 58 2	3343	87 21 24	3333	88 44 57	3324

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LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
			° ' "		° ' "		° ' "		° ' "
21	α Arietis	W.	35 26 58	3332	36 50 32	3301	38 14 42	3272	39 39
	Mars	E.	35 48 43	3099	34 20 32	3092	32 52 13	3085	31 23
	Pollux	E.	42 13 49	2989	40 43 23	2984	39 12 50	2978	37 42
	Regulus	E.	78 14 56	2979	76 44 17	2973	75 13 30	2966	73 42
22	α Pegasi	W.	90 8 41	3316	91 32 34	3307	92 56 37	3299	94 20
	α Arietis	W.	46 50 31	3131	48 18 3	3112	49 45 58	3092	51 14
	Jupiter	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Mars	E.	23 59 2	3037	22 29 35	3029	20 59 58	3020	19 30
	Regulus	E.	66 5 34	2920	64 33 40	2910	63 1 34	2902	61 29
	SUN	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
23	α Pegasi	W.	101 24 5	3256	102 49 8	3250	104 14 18	3244	105 39
	α Arietis	W.	58 41 19	2989	60 11 46	2971	61 42 35	2955	63 13
	Aldebaran	W.	27 8 27	2884	28 41 6	2867	30 14 7	2850	31 47
	Jupiter	W.	23 2 24	2798	24 36 54	2786	26 11 40	2775	27 46
	Regulus	E.	53 44 51	2843	52 11 19	2832	50 37 33	2821	49 3
	SUN	E.	115 49 51	3197	114 23 38	3183	112 57 9	3170	111 30
24	α Arietis	W.	70 54 39	2858	72 27 52	2842	74 1 26	2825	75 35
	Aldebaran	W.	39 39 37	2755	41 15 4	2739	42 50 52	2723	44 27
	Jupiter	W.	35 45 58	2697	37 22 42	2684	38 59 44	2669	40 37
	Regulus	E.	41 9 53	2753	39 34 24	2741	37 58 39	2730	36 22
	SUN	E.	104 12 32	3086	102 44 5	3070	101 15 19	3056	99 46
25	α Arietis	W.	83 30 15	2728	85 6 18	2711	86 42 43	2695	88 19
	Aldebaran	W.	52 33 11	2626	54 11 31	2609	55 50 14	2593	57 29
	Jupiter	W.	48 48 52	2578	50 28 17	2563	52 8 3	2547	53 48
	Mars	W.	- - -	- - -	- - -	- - -	16 20 29	2696	17 57
	Regulus	E.	28 18 51	2666	26 41 26	2657	25 3 48	2648	23 25
	SUN	E.	92 15 52	2957	90 44 45	2940	89 13 17	2922	87 41
26	Aldebaran	W.	65 50 39	2490	67 32 7	2472	69 13 59	2455	70 56
	Jupiter	W.	62 14 33	2448	63 57 0	2430	65 39 52	2413	67 23
	Mars	W.	26 7 32	2583	27 46 51	2564	29 26 35	2546	31 6
	SUN	E.	79 56 34	2815	78 22 25	2797	76 47 53	2779	75 12
27	Aldebaran	W.	79 33 53	2351	81 18 39	2333	83 3 50	2316	84 49
	Jupiter	W.	76 5 36	2310	77 51 21	2293	79 37 31	2276	81 24
	Mars	W.	39 33 58	2436	41 16 42	2418	42 59 51	2400	44 43
	Pollux	W.	35 25 27	2365	37 9 52	2346	38 54 44	2327	40 40
	SUN	E.	67 12 8	2668	65 34 45	2650	63 56 58	2632	62 18
28	Aldebaran	W.	93 43 34	2218	95 31 35	2202	97 19 59	2188	99 8
	Jupiter	W.	90 23 7	2178	92 12 8	2163	94 1 32	2147	95 51
	Mars	W.	53 27 36	2297	55 13 40	2281	57 0 8	2265	58 46
	Pollux	W.	49 33 21	2222	51 21 16	2204	53 9 37	2189	54 58
	SUN	E.	54 1 45	2528	52 21 11	2512	50 40 14	2497	48 58
29	Jupiter	W.	105 5 46	2064	106 57 41	2051	108 49 56	2040	110 42
	Mars	W.	67 46 52	2177	69 35 54	2165	71 25 15	2153	73 14
	Pollux	W.	64 7 42	2103	65 58 37	2090	67 49 52	2078	69 41
	SUN	E.	40 27 11	2412	38 43 54	2400	37 0 19	2389	35 16
30	Mars	W.	82 27 23	2090	84 18 37	2083	86 10 2	2075	88 13

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Days of the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
21	α Arietis W.	41 4 42	3220	42 30 28	3195	43 56 43	3173	45 23 24	3152
	Mars E.	29 55 8	3069	28 26 21	3062	26 57 25	3053	25 28 18	3046
	Pollux E.	36 11 23	2968	34 40 30	2962	33 9 30	2956	31 38 22	2951
	Regulus E.	72 11 29	2951	70 40 15	2944	69 8 52	2935	67 37 18	2928
22	α Pegasi W.	95 45 12	3283	97 9 43	3276	98 34 22	3269	99 59 10	3263
	α Arietis W.	52 42 58	3056	54 12 1	3039	55 41 26	3022	57 11 12	3005
	Jupiter W.	16 46 44	2842	18 20 18	2831	19 54 6	2820	21 28 8	2809
	Mars E.	- - -	-	- - -	-	- - -	-	- - -	-
	Regulus E.	59 56 49	2883	58 24 8	2874	56 51 16	2863	55 18 10	2853
	SUN E.	121 32 20	3245	120 7 4	3233	118 41 34	3221	117 15 50	3209
23	α Pegasi W.	107 4 58	3235	108 30 26	3231	109 55 59	3227	111 21 36	3225
	α Arietis W.	64 45 14	2923	66 17 4	2906	67 49 15	2890	69 21 47	2874
	Aldebaran W.	33 21 14	2818	34 55 18	2802	36 29 44	2786	38 4 30	2770
	Jupiter W.	29 21 59	2750	30 57 33	2737	32 33 24	2724	34 9 32	2711
	Regulus E.	47 29 19	2799	45 54 50	2788	44 20 6	2776	42 45 7	2765
	SUN E.	110 3 24	3143	108 36 7	3129	107 8 33	3115	105 40 41	3101
24	α Arietis W.	77 9 37	2793	78 44 14	2776	80 19 13	2760	81 54 33	2744
	Aldebaran W.	46 3 32	2691	47 40 24	2675	49 17 38	2659	50 55 13	2642
	Jupiter W.	42 14 46	2640	43 52 47	2625	45 31 8	2610	47 9 49	2594
	Regulus E.	34 46 23	2707	33 9 52	2696	31 33 6	2684	29 56 5	2675
	SUN E.	98 16 51	3023	96 47 7	3006	95 17 2	2991	93 46 38	2974
25	α Arietis W.	89 56 39	2661	91 34 11	2646	93 12 4	2629	94 50 19	2613
	Aldebaran W.	59 8 48	2558	60 48 40	2541	62 28 56	2525	64 9 35	2507
	Jupiter W.	55 28 41	2515	57 9 34	2498	58 50 50	2481	60 32 30	2465
	Mars W.	19 34 28	2657	21 12 6	2638	22 50 9	2619	24 28 38	2601
	Regulus E.	21 48 0	2641	20 10 1	2642	18 32 3	2647	16 54 12	2661
	SUN E.	86 9 14	2887	84 36 38	2870	83 3 40	2852	81 30 19	2833
26	Aldebaran W.	72 38 57	2419	74 22 4	2403	76 5 35	2385	77 49 32	2368
	Jupiter W.	69 6 48	2379	70 50 53	2362	72 35 23	2345	74 20 17	2328
	Mars W.	32 47 20	2509	34 28 21	2490	36 9 48	2472	37 51 40	2454
	SUN E.	73 37 36	2741	72 1 51	2723	70 25 41	2705	68 49 7	2686
27	Aldebaran W.	86 35 27	2282	88 21 53	2266	90 8 42	2249	91 55 56	2233
	Jupiter W.	83 11 5	2243	84 58 29	2226	86 46 18	2211	88 34 30	2194
	Mars W.	46 27 26	2365	48 11 51	2348	49 56 41	2331	51 41 56	2313
	Pollux W.	42 25 51	2291	44 12 4	2272	45 58 44	2255	47 45 50	2238
	SUN E.	60 40 9	2596	59 1 9	2578	57 21 44	2561	55 41 56	2545
28	Aldebaran W.	100 57 54	2158	102 47 25	2144	104 37 17	2131	106 27 29	2118
	Jupiter W.	97 41 30	2118	99 32 2	2103	101 22 56	2090	103 14 11	2077
	Mars W.	60 34 14	2234	62 21 51	2219	64 9 50	2205	65 58 10	2190
	Pollux W.	56 47 29	2159	58 36 59	2143	60 26 52	2130	62 17 6	2115
	SUN E.	47 17 15	2466	45 35 14	2451	43 52 52	2438	42 10 11	2424
29	Jupiter W.	112 35 17	2018	114 28 24	2003	116 21 46	1998	118 15 23	1988
	Mars W.	75 4 52	2129	76 55 6	2118	78 45 37	2109	80 36 23	2100
	Pollux W.	71 33 16	2055	73 25 24	2045	75 17 48	2036	77 10 26	2027
	SUN E.	33 32 24	2370	31 48 6	2362	30 3 36	2355	28 18 56	2348
30	Mars W.	- - -	-	- - -	-	- - -	-	- - -	-

CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 13^h, MEAN TIME.

Days of the Month.	Apparent West.	Apparent East.
1	1·○	○ 4· ·2 3·
2		○ 4· ·3· 2·○
3	4· 8· 1·	○ 3·
4	4· 3·	○ ·2 ·1
5	4· 3· ·1	○ ·2
6	·4 2·	○ ·1 ● ·3
7	·4 ·2 ·1	○ ·3
8	·4	○ ·2 3· ○ 1·
9	·4	○ 2· 1· 3·
10	·2 3· 1·	○ ·4
11	3·	○ ·2 ·1 ·4
12	·3 1·	○ 2· ·4
13	·3 ● 2·	○ 1· ·4
14	·2 ·1	○ ·3 4·
15		○ 1· 2· 3· 4·
16	·1 ●	○ 2· 3· 4·
17	2· 3· 1·	○ 4·
18	3·	○ 1· 2· ● ○ 4·
19	·3 4· 1·	○ 2·
20	4· 2· 3	○ 1·
21	4· ·2 ·1	○ ·3
22	4·	○ 1· ·2 3·
23	·4	○ 2· 3· ·1 ●
24	·4 2· 3·	○ 1· ○
25	3· 4·	○ ·1 ·2 ●
26	·3 1· 4	○ 2·
27	·3 2·	○ 1· 4·
28	·2 ·1	○ ·3 ·4
29		○ 1· 2· 3· ·4
30	·1	○ 2· 3· ·4
31	3· ○ 1· 2·	○ 4·

This Table represents, at 13^h after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page; —the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.		^h ^m ^s	^h ^m ^s	
	2	7 13 18.3	19 57 23.0	Im.
	4	1 41 42.4	14 32 45.8	Im.
	5	20 10 4.9	9 8 7.0	Im.
	7*	14 38 30.1	3 43 30.8	Im.
	9*	9 6 52.8	22 18 52.1	Im.
	11	3 35 18.6	16 54 16.6	Im.
	12	22 3 42.2	11 29 38.8	Im.
	14*	16 32 8.2	6 5 3.4	Im.
	16*	11 0 32.7	0 40 26.5	Im.
	18	5 28 59.7	19 15 52.1	Im.
	19	23 57 24.6	13 51 15.7	Im.
	21*	18 25 51.6	8 26 41.3	Im.
	23*	12 54 17.3	3 2 5.7	Im.
	25*	7 22 45.9	21 37 33.0	Im.
	27	1 51 12.1	16 12 57.8	Im.
	28	20 19 41.8	10 48 26.1	Im.
	30*	14 48 8.5	5 23 51.5	Im.
II.				
	4	4 37 44.7	17 29 17.0	Im.
	7*	17 55 43.1	7 1 16.2	Im.
	11	7 14 44.5	20 34 18.5	Im.
	14	20 32 43.9	10 6 18.6	Im.
	18*	9 51 43.8	23 38 19.4	Im.
	21	23 9 44.7	13 11 21.1	Im.
	25*	12 28 41.6	2 44 18.9	Im.
	29	1 46 42.4	16 16 20.5	Im.
III.				
	6	5 26 43.3	18 26 16.7	Im.
	6	7 43 34.6	20 43 30.6	Em.
	13*	9 26 19.7	22 54 8.4	Im.
	13*	11 43 48.6	1 11 59.9	Em.
	20*	13 26 20.4	3 22 24.4	Im.
	20*	15 44 30.9	5 40 57.6	Em.
	27*	17 25 50.4	7 50 9.6	Im.
	27	19 44 40.9	10 9 22.9	Em.

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APPROXIMATE SIDEREAL TIME						
OF THE						
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,						
AND OF THE						
TRANSITS OF THE SATELLITES AND THEIR SHADOWS						
OVER THE DISC OF THE PLANET.						
Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHADOWS.	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Egress.
I.	d h m	d h m	d h m	d h m	d h m	d h m
		2* 23 21	1* 23 49	1* 2 4	1* 22 42	1* 0
		4 17 55	3 18 23	3 20 38	3 17 18	3 19
		5 12 30	5 12 57	5 15 12	4 11 53	5 14
		7* 7 3	6 7 31	6 9 47	6* 6 29	6 8
		9* 1 37	8* 2 5	8* 4 20	8* 1 4	8* 3
	In	11 20 11	10 20 39	10* 22 54	10 19 40	10* 21
		13 14 45	12 15 13	12 17 28	12 14 15	12 16
		14 9 19	13 9 46	13 12 2	13 8 51	13 10
	the	16* 3 52	15* 4 20	15* 6 36	15* 3 26	15* 5
		18* 22 26	17* 22 54	17* 1 9	17* 22 2	17* 0
	Shadow.	20 17 0	19 17 27	19 19 43	19 16 37	19 18
		21 11 33	20 12 1	21 14 16	20 11 13	20 13
		23* 6 6	22* 6 34	22 8 50	22* 5 49	22* 7
		25* 0 40	24* 1 8	24* 3 23	24* 0 24	24* 2
		27 19 13	26 19 41	26* 21 56	26 19 0	26 21
		28 13 46	27 14 14	28 16 29	27 13 35	28 15
		30* 8 19	29* 8 47	29 11 3	29* 8 11	29 10
			31* 3 21	31* 5 36	31* 2 46	31* 4
II.		4* 22 18	2* 0 59	2* 3 34	2* 22 30	2* 0
	In	7 11 45	6 14 27	6 17 2	5 12 1	6 14
		11* 1 12	9* 3 53	9* 6 28	9* 1 32	9* 3
	the	15 14 37	13 17 20	13 19 55	13 15 3	13 17
		18* 4 3	16* 6 45	16 9 20	16* 4 35	16* 6
	Shadow.	22 17 27	20 20 10	20* 22 45	20 18 6	20 20
		25* 6 52	23 9 35	23 12 9	23* 7 37	23 9
		29 20 15	27* 22 59	27* 1 33	27 21 8	27* 23
			30 12 22	31 14 57	30 10 40	30 13
III.	6* 23 10	6* 1 20	2 9 5	2 11 15	2* 4 6	2* 6
	13* 3 13	13* 5 23	9 13 11	10 15 21	9 8 34	9 10
	20* 7 12	20 9 21	17 17 13	17 19 22	16 13 2	17 15
	27 11 6	27 13 15	24 21 9	24* 23 18	24 17 30	24 19
			31* 1 1	31* 3 10	31* 21 58	31* 0

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d . 505048. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	+1.2667	+0.4686	+9.6047	—0.3078	11 19 11.39	192	273	.747
2	1.2656	0.5169	9.6069	0.3083	11 15 15.48	193	274	.750
3	1.2643	0.5603	9.6090	0.3088	11 11 19.58	194	275	.753
4	+1.2628	+0.5997	+9.6111	—0.3091	11 7 23.67	195	276	.756
5	1.2613	0.6356	9.6133	0.3093	11 3 27.76	196	277	.758
6	1.2596	0.6687	9.6154	0.3094	10 59 31.85	197	278	.761
7	+1.2578	+0.6994	+9.6176	—0.3093	10 55 35.95	198	279	.764
8	1.2558	0.7279	9.6197	0.3091	10 51 40.04	199	280	.767
9	1.2537	0.7546	9.6218	0.3088	10 47 44.13	200	281	.769
10	+1.2514	+0.7796	+9.6239	—0.3084	10 43 48.22	201	282	.772
11	1.2490	0.8032	9.6261	0.3079	10 39 52.32	202	283	.775
12	1.2465	0.8254	9.6282	0.3072	10 35 56.41	203	284	.778
13	+1.2438	+0.8464	+9.6304	—0.3065	10 32 0.50	204	285	.780
14	1.2410	0.8663	9.6325	0.3056	10 28 4.59	205	286	.783
15	1.2380	0.8853	9.6347	0.3047	10 24 8.69	206	287	.786
16	+1.2349	+0.9033	+9.6369	—0.3036	10 20 12.78	207	288	.789
17	1.2316	0.9205	9.6391	0.3024	10 16 16.87	208	289	.791
18	1.2281	0.9369	9.6414	0.3011	10 12 20.97	209	290	.794
19	+1.2245	+0.9527	+9.6436	—0.2997	10 8 25.06	210	291	.797
20	1.2207	0.9677	9.6458	0.2982	10 4 29.15	211	292	.799
21	1.2167	0.9821	9.6481	0.2966	10 0 33.24	212	293	.802
22	+1.2126	+0.9960	+9.6504	—0.2950	9 56 37.33	213	294	.805
23	1.2083	1.0093	9.6527	0.2932	9 52 41.42	214	295	.808
24	1.2039	1.0220	9.6550	0.2914	9 48 45.51	215	296	.810
25	+1.1992	+1.0343	+9.6573	—0.2895	9 44 49.61	216	297	.813
26	1.1944	1.0462	9.6597	0.2875	9 40 53.70	217	298	.816
27	1.1893	1.0576	9.6620	0.2854	9 36 57.79	218	299	.819
28	+1.1841	+1.0686	+9.6644	—0.2833	9 33 1.88	219	300	.821
29	1.1787	1.0792	9.6668	0.2811	9 29 5.97	220	301	.824
30	1.1730	1.0894	9.6692	0.2788	9 25 10.06	221	302	.827
31	1.1672	1.0992	9.6715	0.2765	9 21 14.15	222	303	.830
32	+1.1611	+1.1087	+9.6739	—0.2741	9 17 18.24	223	304	.832

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Sat.	1	14 24 52.20	9.815	S. 14 22 57.7	48.00	1 6.87	16 15.32	0.04
Sun.	2	14 28 47.77	9.849	14 42 9.8	47.40	1 6.99	16 16.31	0.00
Mon.	3	14 32 44.14	9.883	15 1 7.4	46.79	1 7.10	16 16.50	0.02
Tues.	4	14 36 41.32	9.917	15 19 50.3	46.16	1 7.22	16 15.88	0.06
Wed.	5	14 40 39.32	9.951	15 38 18.1	45.50	1 7.33	16 14.44	0.09
Thur.	6	14 44 38.14	9.985	15 56 30.2	44.84	1 7.45	16 12.18	0.12
Frid.	7	14 48 37.77	10.019	16 14 26.3	44.15	1 7.57	16 9.12	0.16
Sat.	8	14 52 38.23	10.054	16 32 5.9	43.45	1 7.69	16 5.22	0.14
Sun.	9	14 56 39.52	10.088	16 49 28.8	42.73	1 7.81	16 0.51	0.22
Mon.	10	15 0 41.63	10.123	17 6 34.3	41.99	1 7.93	15 54.96	0.26
Tues.	11	15 4 44.59	10.158	17 23 22.1	41.25	1 8.05	15 48.57	0.30
Wed.	12	15 8 48.38	10.193	17 39 52.0	40.47	1 8.17	15 41.36	0.32
Thur.	13	15 12 53.00	10.228	17 56 3.3	39.69	1 8.29	15 33.31	0.37
Frid.	14	15 16 58.47	10.263	18 11 55.9	38.89	1 8.41	15 24.43	0.40
Sat.	15	15 21 4.78	10.298	18 27 29.2	38.08	1 8.52	15 14.70	0.44
Sun.	16	15 25 11.94	10.333	18 42 43.1	37.25	1 8.64	15 4.13	0.47
Mon.	17	15 29 19.93	10.368	18 57 37.0	36.40	1 8.76	14 52.72	0.51
Tues.	18	15 33 28.77	10.403	19 12 10.5	35.54	1 8.87	14 40.47	0.54
Wed.	19	15 37 38.44	10.438	19 26 23.4	34.66	1 8.99	14 27.40	0.58
Thur.	20	15 41 48.96	10.473	19 40 15.3	33.77	1 9.10	14 13.47	0.61
Frid.	21	15 46 0.30	10.507	19 53 45.8	32.87	1 9.21	13 58.73	0.64
Sat.	22	15 50 12.46	10.540	20 6 54.6	31.95	1 9.33	13 43.17	0.68
Sun.	23	15 54 25.42	10.574	20 19 41.3	31.01	1 9.43	13 26.81	0.71
Mon.	24	15 58 39.20	10.607	20 32 5.5	30.06	1 9.54	13 9.62	0.74
Tues.	25	16 2 53.77	10.640	20 44 6.9	29.10	1 9.64	12 51.66	0.78
Wed.	26	16 7 9.12	10.671	20 55 45.2	28.12	1 9.74	12 32.93	0.81
Thur.	27	16 11 25.22	10.701	21 7 0.1	27.12	1 9.84	12 13.44	0.84
Frid.	28	16 15 42.05	10.731	21 17 51.0	26.12	1 9.94	11 53.22	0.87
Sat.	29	16 19 59.59	10.761	21 28 17.9	25.10	1 10.04	11 32.29	0.90
Sun.	30	16 24 17.85	10.789	21 38 20.2	24.07	1 10.13	11 10.65	0.93
Mon.	31	16 28 36.78		S. 21 47 57.8		1 10.22	10 48.34	

* Mean Time of the Semidiameter

to be found by subtracting 0.19 from the Sidereal Time

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be subtracted from Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Sat.	1	14 24 54·86	S. 14 23 10·8	16 8·8	16 15·34	14 41 10·20
Sun.	2	14 28 50·44	14 42 22·7	16 9·1	16 16·32	14 45 6·76
Mon.	3	14 32 46·82	15 1 20·2	16 9·3	16 16·50	14 49 3·32
Tues.	4	14 36 44·00	15 20 2·9	16 9·6	16 15·87	14 52 59·87
Wed.	5	14 40 42·01	15 38 30·5	16 9·8	16 14·42	14 56 56·43
Thur.	6	14 44 40·83	15 56 42·4	16 10·1	16 12·15	15 0 52·98
Frid.	7	14 48 40·46	16 14 38·3	16 10·3	16 9·08	15 4 49·54
Sat.	8	14 52 40·92	16 32 17·7	16 10·5	16 5·17	15 8 46·09
Sun.	9	14 56 42·21	16 49 40·3	16 10·8	16 0·44	15 12 42·65
Mon.	10	15 0 44·31	17 6 45·5	16 11·0	15 54·89	15 16 39·20
Tues.	11	15 4 47·26	17 23 33·1	16 11·2	15 48·50	15 20 35·76
Wed.	12	15 8 51·04	17 40 2·7	16 11·5	15 41·28	15 24 32·32
Thur.	13	15 12 55·65	17 56 13·7	16 11·7	15 33·22	15 28 28·87
Frid.	14	15 17 1·10	18 12 6·0	16 11·9	15 24·33	15 32 25·43
Sat.	15	15 21 7·39	18 27 39·0	16 12·1	15 14·59	15 36 21·98
Sun.	16	15 25 14·53	18 42 52·6	16 12·3	15 4·01	15 40 18·54
Mon.	17	15 29 22·50	18 57 46·1	16 12·5	14 52·60	15 44 15·10
Tues.	18	15 33 31·31	19 12 19·3	16 12·7	14 40·34	15 48 11·65
Wed.	19	15 37 40·95	19 26 31·9	16 12·9	14 27·26	15 52 8·21
Thur.	20	15 41 51·44	19 40 23·4	16 13·1	14 13·33	15 56 4·77
Frid.	21	15 46 2·74	19 53 53·6	16 13·3	13 58·58	16 0 1·32
Sat.	22	15 50 14·87	20 7 2·0	16 13·5	13 43·01	16 3 57·88
Sun.	23	15 54 27·79	20 19 48·4	16 13·6	13 26·65	16 7 54·44
Mon.	24	15 58 41·53	20 32 12·2	16 13·8	13 9·46	16 11 50·99
Tues.	25	16 2 56·05	20 44 13·2	16 14·0	12 51·50	16 15 47·55
Wed.	26	16 7 11·35	20 55 51·2	16 14·1	12 32·76	16 19 44·11
Thur.	27	16 11 27·39	21 7 5·7	16 14·3	12 13·27	16 23 40·66
Frid.	28	16 15 44·17	21 17 56·3	16 14·5	11 53·05	16 27 37·22
Sat.	29	16 20 1·66	21 28 22·8	16 14·6	11 32·12	16 31 33·78
Sun.	30	16 24 19·86	21 38 24·8	16 14·8	11 10·48	16 35 30·34
Mon.	31	16 28 38·72	S. 21 48 2·0	16 14·9	10 48·17	16 39 26·89

* The Semidiameter for *Apparent Noon* may be assumed the same as that for *Mean Noon*.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	218 36 49.6	N. 0.23	9.9964265	16 40.7	16 38.4	61 12.5	61 3.8
2	219 36 58.8	N. 0.12	9.9963159	16 34.8	16 30.0	60 50.5	60 33.1
3	220 37 9.6	0.00	9.9962058	16 24.2	16 17.6	60 11.8	59 47.4
4	221 37 22.2	S. 0.11	9.9960963	16 10.3	16 2.7	59 20.9	58 52.8
5	222 37 36.5	0.23	9.9959874	15 54.8	15 46.8	58 23.9	57 54.6
6	223 37 52.4	0.34	9.9958794	15 39.0	15 31.5	57 26.0	56 58.2
7	224 38 9.6	0.45	9.9957724	15 24.2	15 17.5	56 31.7	56 7.0
8	225 38 28.4	0.52	9.9956663	15 11.3	15 5.7	55 44.3	55 23.7
9	226 38 48.7	0.59	9.9955615	15 0.7	14 56.4	55 5.5	54 49.6
10	227 39 10.4	0.62	9.9954579	14 52.7	14 49.6	54 35.9	54 24.6
11	228 39 33.6	0.62	9.9953559	14 47.1	14 45.2	54 15.5	54 8.5
12	229 39 58.1	0.60	9.9952556	14 43.9	14 43.1	54 3.7	54 0.8
13	230 40 24.0	0.55	9.9951570	14 42.7	14 42.9	53 59.4	54 0.0
14	231 40 51.4	0.48	9.9950604	14 43.4	14 44.4	54 1.9	54 5.5
15	232 41 20.3	0.38	9.9949657	14 45.7	14 47.4	54 10.4	54 16.4
16	233 41 50.8	0.27	9.9948730	14 49.4	14 51.6	54 23.7	54 32.0
17	234 42 22.7	0.14	9.9947825	14 54.1	14 57.0	54 41.3	54 51.8
18	235 42 56.2	S. 0.01	9.9946940	15 0.1	15 3.4	55 3.0	55 15.3
19	236 43 31.3	N. 0.11	9.9946076	15 6.9	15 10.8	55 28.2	55 42.4
20	237 44 8.1	0.24	9.9945233	15 14.9	15 19.2	55 57.4	56 13.3
21	238 44 46.5	0.33	9.9944409	15 23.8	15 28.7	56 30.2	56 48.0
22	239 45 26.5	0.41	9.9943605	15 33.8	15 39.1	57 6.7	57 26.2
23	240 46 8.0	0.48	9.9942819	15 44.6	15 50.2	57 46.3	58 7.0
24	241 46 51.3	0.50	9.9942051	15 55.9	16 1.7	58 28.0	58 49.0
25	242 47 36.2	0.50	9.9941299	16 7.2	16 12.6	59 9.3	59 29.1
26	243 48 22.7	0.48	9.9940563	16 17.6	16 22.1	59 47.4	60 4.1
27	244 49 10.5	0.42	9.9939842	16 26.0	16 29.1	60 18.3	60 29.6
28	245 49 59.8	0.35	9.9939135	16 31.2	16 32.3	60 37.4	60 41.5
29	246 50 50.4	0.25	9.9938442	16 32.3	16 31.2	60 41.7	60 37.5
30	247 51 42.4	0.13	9.9937764	16 28.9	16 25.5	60 29.0	60 16.7
31	248 52 35.5	N. 0.01	9.9937098	16 21.2	16 15.9	60 0.9	59 41.4

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
Sat.	1	220° 54' 20" 9	228° 28' 55" 9	N. 3° 7' 28" 4	N. 2° 33' 11" 4	0° 2'	h m 0 53		
Sun.	2	236° 0' 0" 9	243° 26' 31" 7	1° 56' 26" 9	N. 1° 18' 2" 3	1° 2'	0 53 6		
Mon.	3	250° 47' 35" 0	258° 2' 28" 3	N. 0° 38' 45" 0	S. 0° 0' 39" 9	2° 2'	1 52 6		
Tues.	4	265° 10' 43" 9	272° 12' 4" 1	S. 0° 39' 30" 5	1° 17' 8" 6	3° 2'	2 52 8		
Wed.	5	279° 6' 24" 3	285° 53' 47" 2	1° 53' 3" 0	2° 26' 44" 8	4° 2'	3 52 4		
Thur.	6	292° 34' 26" 4	299° 8' 40" 1	2° 57' 52" 7	3° 26' 9" 0	5° 2'	4 49 6		
Frid.	7	305° 36' 53" 1	311° 59' 33" 5	3° 51' 19" 9	4° 13' 16" 1	6° 2'	5 43 2		
Sat.	8	318° 17' 11" 5	324° 30' 19" 8	4° 31' 49" 8	4° 46' 57" 6	7° 2'	6 32 8		
Sun.	9	330° 39' 31" 3	336° 45' 18" 0	4° 58' 36" 6	5° 6' 45" 4	8° 2'	7 18 7		
Mon.	10	342° 48' 11" 9	348° 48' 44" 2	5° 11' 25" 0	5° 12' 36" 9	9° 2'	8 1 8		
Tues.	11	354° 47' 24" 2	0° 44' 38" 5	5° 10' 24" 2	5° 4' 50" 3	10° 2'	8 42 9		
Wed.	12	6° 40' 52" 7	12° 36' 30" 8	4° 56' 0" 8	4° 44' 1" 2	11° 2'	9 23 0		
Thur.	13	18° 31' 54" 1	24° 27' 21" 2	4° 28' 58" 9	4° 11' 2" 5	12° 2'	10 3 1		
Frid.	14	30° 23' 10" 0	36° 19' 36" 5	3° 50' 21" 7	3° 27' 8" 1	13° 2'	10 44 1		
Sat.	15	42° 16' 55" 2	48° 15' 19" 4	3° 1' 34" 6	2° 33' 55" 4	14° 2'	11 26 8		
Sun.	16	54° 15' 1" 3	60° 16' 13" 3	2° 4' 26" 3	1° 33' 24" 9	15° 2'	12 11 9		
Mon.	17	66° 19' 8" 3	72° 23' 57" 0	S. 1° 1' 10" 0	S. 0° 28' 1" 3	16° 2'	12 59 7		
Tues.	18	78° 30' 53" 1	84° 40' 10" 6	N. 0° 5' 39" 9	N. 0° 39' 31" 6	17° 2'	13 50 3		
Wed.	19	90° 52' 3" 8	97° 6' 47" 6	1° 13' 10" 9	1° 46' 14" 4	18° 2'	14 43 2		
Thur.	20	103° 24' 39" 4	109° 45' 56" 8	2° 18' 18" 0	2° 48' 57" 1	19° 2'	15 37 2		
Frid.	21	116° 10' 57" 8	122° 40' 0" 6	3° 17' 47" 2	3° 44' 23" 7	20° 2'	16 31 3		
Sat.	22	129° 13' 23" 3	135° 51' 22" 3	4° 8' 22" 6	4° 29' 19" 9	21° 2'	17 24 5		
Sun.	23	142° 34' 12" 9	149° 22' 6" 5	4° 46' 52" 6	5° 0' 37" 8	22° 2'	18 16 3		
Mon.	24	156° 15' 11" 7	163° 13' 31" 8	5° 10' 16" 1	5° 15' 29" 2	23° 2'	19 7 0		
Tues.	25	170° 17' 3" 8	177° 25' 37" 8	5° 16' 2" 3	5° 11' 44" 4	24° 2'	19 57 2		
Wed.	26	184° 38' 56" 5	191° 56' 34" 0	5° 2' 29" 5	4° 48' 17" 0	25° 2'	20 47 8		
Thur.	27	199° 17' 57" 0	206° 42' 21" 8	4° 29' 13" 6	4° 5' 32" 9	26° 2'	21 39 9		
Frid.	28	214° 8' 58" 9	221° 36' 51" 7	3° 37' 35" 9	3° 5' 51" 1	27° 2'	22 34 6		
Sat.	29	229° 5' 0" 2	236° 32' 21" 3	2° 30' 53" 6	1° 53' 23" 9	28° 2'	23 32 2		
Sun.	30	243° 57' 52" 5	251° 20' 33" 5	N. 1° 14' 6" 8	N. 0° 33' 48" 6	29° 2'	0		
Mon.	31	258° 39' 28" 8	265° 53' 50" 1	S. 0° 6' 43" 4	S. 0° 46' 44" 2	0° 7'	0 32 5		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
SATURDAY 1.				MONDAY 3.		
0	14 37 53.42	S. 12 8 26.8	142.36	0	16 37 12.69	S. 21 26 41.3
1	14 40 17.77	12 22 41.0	141.52	1	16 39 46.07	21 35 0.3
2	14 42 42.34	12 36 50.1	140.66	2	16 42 19.56	21 43 9.9
3	14 45 7.11	12 50 54.1	139.78	3	16 44 53.16	21 51 10.1
4	14 47 32.10	13 4 52.8	138.88	4	16 47 26.86	21 59 0.8
5	14 49 57.30	13 18 46.1	137.97	5	16 50 0.66	22 6 42.1
6	14 52 22.71	13 32 33.9	137.03	6	16 52 34.54	22 14 13.8
7	14 54 48.34	13 46 16.1	136.07	7	16 55 8.51	22 21 36.0
8	14 57 14.18	13 59 52.5	135.10	8	16 57 42.56	22 28 48.5
9	14 59 40.24	14 13 23.1	134.11	9	17 0 16.68	22 35 51.3
10	15 2 6.51	14 26 47.8	133.10	10	17 2 50.86	22 42 44.5
11	15 4 33.00	14 40 6.4	132.08	11	17 5 25.11	22 49 27.9
12	15 6 59.70	14 53 18.9	131.04	12	17 7 59.41	22 56 1.5
13	15 9 26.62	15 6 25.1	129.97	13	17 10 33.76	23 2 25.4
14	15 11 53.75	15 19 24.9	128.89	14	17 13 8.16	23 8 39.4
15	15 14 21.10	15 32 18.3	127.79	15	17 15 42.58	23 14 43.5
16	15 16 48.66	15 45 5.0	126.68	16	17 18 17.04	23 20 37.7
17	15 19 16.43	15 57 45.1	125.55	17	17 20 51.52	23 26 22.0
18	15 21 44.42	16 10 18.4	124.40	18	17 23 26.01	23 31 56.4
19	15 24 12.62	16 22 44.8	123.23	19	17 26 0.51	23 37 20.9
20	15 26 41.02	16 35 4.2	122.05	20	17 28 35.01	23 42 35.3
21	15 29 9.64	16 47 16.5	120.85	21	17 31 9.51	23 47 39.8
22	15 31 38.45	16 59 21.7	119.64	22	17 33 43.99	23 52 34.2
23	15 34 7.48	S. 17 11 19.5	118.41	23	17 36 18.46	S. 23 57 18.6
SUNDAY 2.				TUESDAY 4.		
0	15 36 36.71	S. 17 23 10.0	117.16	0	17 38 52.90	S. 24 1 53.0
1	15 39 6.14	17 34 52.9	115.90	1	17 41 27.30	24 6 17.4
2	15 41 35.77	17 46 28.3	114.62	2	17 44 1.67	24 10 31.6
3	15 44 5.60	17 57 56.1	113.33	3	17 46 35.98	24 14 35.9
4	15 46 35.63	18 9 16.0	112.02	4	17 49 10.24	24 18 30.1
5	15 49 5.85	18 20 28.2	110.70	5	17 51 44.44	24 22 14.3
6	15 51 36.26	18 31 32.4	109.37	6	17 54 18.56	24 25 48.4
7	15 54 6.85	18 42 28.6	108.02	7	17 56 52.62	24 29 12.5
8	15 56 37.64	18 53 16.7	106.65	8	17 59 26.59	24 32 26.5
9	15 59 8.61	19 3 56.6	105.27	9	18 2 0.46	24 35 30.6
10	16 1 39.76	19 14 28.2	103.88	10	18 4 34.25	24 38 24.6
11	16 4 11.08	19 24 51.5	102.48	11	18 7 7.92	24 41 8.6
12	16 6 42.58	19 35 6.4	101.06	12	18 9 41.49	24 43 42.7
13	16 9 14.25	19 45 12.8	99.63	13	18 12 14.94	24 46 6.8
14	16 11 46.09	19 55 10.6	98.19	14	18 14 48.26	24 48 21.0
15	16 14 18.09	20 4 59.7	96.74	15	18 17 21.46	24 50 25.2
16	16 16 50.24	20 14 40.1	95.27	16	18 19 54.51	24 52 19.5
17	16 19 22.56	20 24 11.7	93.79	17	18 22 27.41	24 54 4.0
18	16 21 55.02	20 33 34.5	92.30	18	18 25 0.16	24 55 38.6
19	16 24 27.63	20 42 48.3	90.81	19	18 27 32.75	24 57 3.3
20	16 27 0.37	20 51 53.1	89.30	20	18 30 5.17	24 58 18.2
21	16 29 33.26	21 0 48.9	87.78	21	18 32 37.42	24 59 23.4
22	16 32 6.28	21 9 35.6	86.25	22	18 35 9.48	25 0 18.8
23	16 34 39.42	21 18 13.1	84.71	23	18 37 41.36	25 1 4.5
24	16 37 12.69	S. 21 26 41.3		24	18 40 13.04	S. 25 1 40.5

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 5.				FRIDAY 7.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	18 40 13.04	S. 25 1 40.5	4.39	0	20 36 1.95	S. 22 37 10.2	62.01
1	18 42 44.52	25 2 6.8	2.79	1	20 38 18.29	22 30 58.1	63.12
2	18 45 15.79	25 2 23.5	1.19	2	20 40 34.26	22 24 39.3	64.22
3	18 47 46.84	25 2 30.7	0.40	3	20 42 49.84	22 18 14.0	65.31
4	18 50 17.68	25 2 28.3	1.98	4	20 45 5.05	22 11 42.1	66.39
5	18 52 48.29	25 2 16.4	3.55	5	20 47 19.88	22 5 3.8	67.45
6	18 55 18.67	25 1 55.1	5.12	6	20 49 34.33	21 58 19.1	68.51
7	18 57 48.81	25 1 24.4	6.68	7	20 51 48.40	21 51 28.0	69.55
8	19 0 18.70	25 0 44.3	8.23	8	20 54 2.09	21 44 30.7	70.58
9	19 2 48.35	24 59 54.9	9.77	9	20 56 15.40	21 37 27.2	71.60
10	19 5 17.74	24 58 56.3	11.31	10	20 58 28.33	21 30 17.6	72.61
11	19 7 46.87	24 57 48.5	12.83	11	21 0 40.89	21 23 2.0	73.60
12	19 10 15.74	24 56 31.5	14.35	12	21 2 53.07	21 15 40.4	74.59
13	19 12 44.34	24 55 5.4	15.85	13	21 5 4.87	21 8 12.9	75.56
14	19 15 12.65	24 53 30.3	17.35	14	21 7 16.29	21 0 39.5	76.52
15	19 17 40.69	24 51 46.1	18.84	15	21 9 27.34	20 53 0.4	77.47
16	19 20 8.44	24 49 53.1	20.32	16	21 11 38.02	20 45 15.6	78.40
17	19 22 35.90	24 47 51.2	21.79	17	21 13 48.32	20 37 25.2	79.33
18	19 25 3.06	24 45 40.4	23.25	18	21 15 58.25	20 29 29.2	80.24
19	19 27 29.93	24 43 20.9	24.70	19	21 18 7.81	20 21 27.7	81.15
20	19 29 56.48	24 40 52.7	26.14	20	21 20 17.00	20 13 20.8	82.04
21	19 32 22.73	24 38 15.8	27.57	21	21 22 25.82	20 5 8.6	82.92
22	19 34 48.66	24 35 30.4	28.99	22	21 24 34.27	19 56 51.1	83.79
23	19 37 14.28	S. 24 32 36.4	30.40	23	21 26 42.36	S. 19 48 28.4	84.65
THURSDAY 6.				SATURDAY 8.			
	^h ^m ^s	^o ['] ["]	["]		^h ^m ^s	^o ['] ["]	["]
0	19 39 39.57	S. 24 29 34.0	31.80	0	21 28 50.09	S. 19 40 0.5	85.49
1	19 42 4.53	24 26 23.2	33.19	1	21 30 57.46	19 31 27.5	86.32
2	19 44 29.17	24 23 4.1	34.57	2	21 33 4.46	19 22 49.6	87.15
3	19 46 53.47	24 19 36.6	35.94	3	21 35 11.11	19 14 6.7	87.96
4	19 49 17.43	24 16 1.0	37.29	4	21 37 17.41	19 5 18.9	88.77
5	19 51 41.06	24 12 17.3	38.64	5	21 39 23.35	18 56 26.3	89.56
6	19 54 4.34	24 8 25.5	39.97	6	21 41 28.94	18 47 29.0	90.34
7	19 56 27.27	24 4 25.6	41.29	7	21 43 34.18	18 38 27.0	91.11
8	19 58 49.86	24 0 17.9	42.61	8	21 45 39.07	18 29 20.3	91.87
9	20 1 12.09	23 56 2.2	43.91	9	21 47 43.62	18 20 9.1	92.62
10	20 3 33.98	23 51 38.8	45.20	10	21 49 47.83	18 10 53.3	93.36
11	20 5 55.50	23 47 7.6	46.48	11	21 51 51.70	18 1 33.2	94.09
12	20 8 16.66	23 42 28.7	47.74	12	21 53 55.23	17 52 8.6	94.81
13	20 10 37.46	23 37 42.3	49.00	13	21 55 58.43	17 42 39.8	95.52
14	20 12 57.90	23 32 48.3	50.24	14	21 58 1.29	17 33 6.6	96.22
15	20 15 17.98	23 27 46.9	51.47	15	22 0 3.83	17 23 29.3	96.91
16	20 17 37.68	23 22 38.1	52.69	16	22 2 6.04	17 13 47.9	97.59
17	20 19 57.02	23 17 21.9	53.90	17	22 4 7.92	17 4 2.3	98.26
18	20 22 15.99	23 11 58.6	55.09	18	22 6 9.49	16 54 12.8	98.92
19	20 24 34.58	23 6 28.0	56.28	19	22 8 10.74	16 44 19.3	99.57
20	20 26 52.81	23 0 50.4	57.45	20	22 10 11.67	16 34 21.9	100.21
21	20 29 10.65	22 55 5.7	58.61	21	22 12 12.28	16 24 20.6	100.84
22	20 31 28.13	22 49 14.0	59.76	22	22 14 12.59	16 14 15.6	101.46
23	20 33 45.23	22 43 15.5	60.89	23	22 16 12.59	16 4 6.9	102.07
24	20 36 1.95	S. 22 37 10.2		24	22 18 12.29	S. 15 53 54.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
<i>SUNDAY 9.</i>				<i>TUESDAY 11.</i>		
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>
0	22 18 12.29	S. 15 53 54.4	102.67	0	23 49 8.03	S. 6 49 5.8
1	22 20 11.69	15 43 38.4	103.27	1	23 50 57.14	6 36 55.6
2	22 22 10.78	15 33 18.8	103.85	2	23 52 46.13	6 24 44.2
3	22 24 9.59	15 22 55.7	104.42	3	23 54 35.01	6 12 31.6
4	22 26 8.10	15 12 29.2	104.99	4	23 56 23.76	6 0 17.7
5	22 28 6.33	15 1 59.3	105.54	5	23 58 12.41	5 48 2.7
6	22 30 4.27	14 51 26.0	106.09	6	0 0 0.95	5 35 46.7
7	22 32 1.93	14 40 49.5	106.63	7	0 1 49.38	5 23 29.5
8	22 33 59.31	14 30 9.7	107.16	8	0 3 37.71	5 11 11.3
9	22 35 56.42	14 19 26.8	107.68	9	0 5 25.94	4 58 52.2
10	22 37 53.26	14 8 40.7	108.19	10	0 7 14.09	4 46 32.1
11	22 39 49.83	13 57 51.6	108.69	11	0 9 2.14	4 34 11.1
12	22 41 46.14	13 46 59.5	109.18	12	0 10 50.11	4 21 49.3
13	22 43 42.19	13 36 4.4	109.67	13	0 12 38.00	4 9 26.6
14	22 45 37.98	13 25 6.4	110.14	14	0 14 25.81	3 57 3.2
15	22 47 33.51	13 14 5.5	110.61	15	0 16 13.54	3 44 39.0
16	22 49 28.80	13 3 1.9	111.07	16	0 18 1.21	3 32 14.1
17	22 51 23.84	12 51 55.5	111.52	17	0 19 48.81	3 19 48.6
18	22 53 18.64	12 40 46.3	111.97	18	0 21 36.35	3 7 22.4
19	22 55 13.20	12 29 34.5	112.40	19	0 23 23.83	2 54 55.7
20	22 57 7.52	12 18 20.1	112.83	20	0 25 11.25	2 42 28.4
21	22 59 1.61	12 7 3.1	113.25	21	0 26 58.63	2 30 0.6
22	23 0 55.47	11 55 43.7	113.66	22	0 28 45.95	2 17 32.3
23	23 2 49.11	S. 11 44 21.7	114.06	23	0 30 33.23	S. 2 5 3.7
<i>MONDAY 10.</i>				<i>WEDNESDAY 12.</i>		
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>
0	23 4 42.53	S. 11 32 57.3	114.46	0	0 32 20.48	S. 1 52 34.6
1	23 6 35.73	11 21 30.6	114.85	1	0 34 7.69	1 40 5.2
2	23 8 28.72	11 10 1.5	115.23	2	0 35 54.86	1 27 35.4
3	23 10 21.49	10 58 30.2	115.60	3	0 37 42.00	1 15 5.4
4	23 12 14.06	10 46 56.6	115.96	4	0 39 29.12	1 2 35.2
5	23 14 6.43	10 35 20.8	116.32	5	0 41 16.22	0 50 4.7
6	23 15 58.60	10 23 42.9	116.67	6	0 43 3.30	0 37 34.2
7	23 17 50.57	10 12 2.9	117.01	7	0 44 50.37	0 25 3.5
8	23 19 42.36	10 0 20.8	117.34	8	0 46 37.43	0 12 32.7
9	23 21 33.95	9 48 36.8	117.67	9	0 48 24.48	S. 0 0 1.9
10	23 23 25.37	9 36 50.8	117.99	10	0 50 11.53	N. 0 12 28.8
11	23 25 16.60	9 25 2.9	118.30	11	0 51 58.58	0 24 59.6
12	23 27 7.66	9 13 13.1	118.60	12	0 53 45.63	0 37 30.2
13	23 28 58.55	9 1 21.5	118.90	13	0 55 32.69	0 50 0.7
14	23 30 49.27	8 49 28.1	119.19	14	0 57 19.77	1 2 31.0
15	23 32 39.82	8 37 33.0	119.47	15	0 59 6.85	1 15 1.2
16	23 34 30.21	8 25 36.2	119.74	16	1 0 53.96	1 27 31.1
17	23 36 20.45	8 13 37.7	120.01	17	1 2 41.09	1 40 0.7
18	23 38 10.54	8 1 37.6	120.27	18	1 4 28.24	1 52 29.9
19	23 40 0.47	7 49 36.0	120.53	19	1 6 15.43	2 4 58.8
20	23 41 50.26	7 37 32.8	120.77	20	1 8 2.64	2 17 27.3
21	23 43 39.91	7 25 28.2	121.01	21	1 9 49.90	2 29 55.3
22	23 45 29.42	7 13 22.1	121.25	22	1 11 37.19	2 42 22.8
23	23 47 18.79	7 1 14.6	121.47	23	1 13 24.53	2 54 49.8
24	23 49 8.03	S. 6 49 5.8		24	1 15 11.91	N. 3 7 16.3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 13.				SATURDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	1 15 11.91	N. 3 7 16.3	124.30	0	2 43 7.68	N. 12 39 11.8	110.83
1	1 16 59.34	3 19 42.1	124.19	1	2 45 1.42	12 50 16.8	110.36
2	1 18 46.83	3 32 7.2	124.07	2	2 46 55.35	13 1 18.9	109.88
3	1 20 34.38	3 44 31.7	123.95	3	2 48 49.50	13 12 18.2	109.39
4	1 22 21.98	3 56 55.4	123.82	4	2 50 43.85	13 23 14.5	108.89
5	1 24 9.65	4 9 18.3	123.68	5	2 52 38.41	13 34 7.8	108.39
6	1 25 57.39	4 21 40.4	123.54	6	2 54 33.19	13 44 58.1	107.87
7	1 27 45.20	4 34 1.7	123.39	7	2 56 28.18	13 55 45.3	107.35
8	1 29 33.09	4 46 22.0	123.23	8	2 58 23.38	14 6 29.4	106.81
9	1 31 21.05	4 58 41.4	123.07	9	3 0 18.81	14 17 10.3	106.27
10	1 33 9.09	5 10 59.8	122.90	10	3 2 14.46	14 27 47.9	105.72
11	1 34 57.22	5 23 17.2	122.71	11	3 4 10.33	14 38 22.3	105.17
12	1 36 45.44	5 35 33.5	122.53	12	3 6 6.43	14 48 53.3	104.60
13	1 38 33.75	5 47 48.6	122.34	13	3 8 2.76	14 59 20.8	104.02
14	1 40 22.16	6 0 2.7	122.14	14	3 9 59.32	15 9 45.0	103.44
15	1 42 10.66	6 12 15.5	121.93	15	3 11 56.12	15 20 5.6	102.85
16	1 43 59.27	6 24 27.1	121.72	16	3 13 53.15	15 30 22.7	102.24
17	1 45 47.98	6 36 37.4	121.49	17	3 15 50.42	15 40 36.2	101.63
18	1 47 36.80	6 48 46.4	121.27	18	3 17 47.93	15 50 45.9	101.01
19	1 49 25.74	7 0 53.9	121.03	19	3 19 45.69	16 0 52.0	100.38
20	1 51 14.79	7 13 0.1	120.79	20	3 21 43.68	16 10 54.3	99.74
21	1 53 3.95	7 25 4.8	120.53	21	3 23 41.92	16 20 52.8	99.10
22	1 54 53.24	7 37 8.0	120.28	22	3 25 40.41	16 30 47.4	98.44
23	1 56 42.66	N. 7 49 9.7	120.01	23	3 27 39.15	N. 16 40 38.0	97.78
FRIDAY 14.				SUNDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	1 58 32.20	N. 8 1 9.7	119.73	0	3 29 38.13	N. 16 50 24.7	97.10
1	2 0 21.87	8 13 8.1	119.45	1	3 31 37.37	17 0 7.3	96.42
2	2 2 11.68	8 25 4.9	119.16	2	3 33 36.86	17 9 45.8	95.73
3	2 4 1.63	8 36 59.8	118.87	3	3 35 36.61	17 19 20.2	95.02
4	2 5 51.71	8 48 53.0	118.56	4	3 37 36.61	17 28 50.3	94.31
5	2 7 41.94	9 0 44.4	118.25	5	3 39 36.88	17 38 16.2	93.59
6	2 9 32.32	9 12 33.9	117.93	6	3 41 37.40	17 47 37.8	92.86
7	2 11 22.85	9 24 21.5	117.61	7	3 43 38.18	17 56 54.9	92.13
8	2 13 13.53	9 36 7.2	117.27	8	3 45 39.23	18 6 7.7	91.38
9	2 15 4.37	9 47 50.8	116.93	9	3 47 40.53	18 15 16.0	90.62
10	2 16 55.36	9 59 32.4	116.58	10	3 49 42.10	18 24 19.7	89.86
11	2 18 46.52	10 11 11.9	116.22	11	3 51 43.94	18 33 18.8	89.08
12	2 20 37.85	10 22 49.2	115.85	12	3 53 46.04	18 42 13.3	88.30
13	2 22 29.34	10 34 24.3	115.48	13	3 55 48.41	18 51 3.1	87.50
14	2 24 21.01	10 45 57.2	115.10	14	3 57 51.05	18 59 48.1	86.70
15	2 26 12.85	10 57 27.8	114.71	15	3 59 53.95	19 8 28.3	85.89
16	2 28 4.86	11 8 56.0	114.31	16	4 1 57.13	19 17 3.6	85.06
17	2 29 57.06	11 20 21.8	113.90	17	4 4 0.57	19 25 34.0	84.23
18	2 31 49.43	11 31 45.3	113.49	18	4 6 4.28	19 33 59.4	83.39
19	2 33 41.99	11 43 6.2	113.07	19	4 8 8.26	19 42 19.7	82.54
20	2 35 34.74	11 54 24.6	112.63	20	4 10 12.52	19 50 35.0	81.68
21	2 37 27.69	12 5 40.4	112.20	21	4 12 17.04	19 58 45.1	80.82
22	2 39 20.82	12 16 53.6	111.75	22	4 14 21.83	20 6 50.0	79.94
23	2 41 14.15	12 28 4.0	111.29	23	4 16 26.90	20 14 49.6	79.05
24	2 43 7.68	N. 12 39 11.8		24	4 18 32.24	N. 20 22 44.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 17.				WEDNESDAY 19.			
0	4 18 32.24	N. 20 22 44.0	78.16	0	6 3 49.13	N. 24 40 41.1	25.16
1	4 20 37.85	20 30 32.9	77.25	1	6 6 6.19	24 43 12.0	25.16
2	4 22 43.72	20 38 16.4	76.34	2	6 8 23.43	24 45 35.2	25.16
3	4 24 49.87	20 45 54.4	75.41	3	6 10 40.83	24 47 50.6	25.16
4	4 26 56.29	20 53 26.9	74.48	4	6 12 58.40	24 49 58.3	25.16
5	4 29 2.98	21 0 53.8	73.54	5	6 15 16.13	24 51 58.2	25.16
6	4 31 9.93	21 8 15.0	72.59	6	6 17 34.01	24 53 50.3	25.16
7	4 33 17.16	21 15 30.6	71.63	7	6 19 52.05	24 55 34.5	25.16
8	4 35 24.66	21 22 40.3	70.66	8	6 22 10.24	24 57 10.9	25.16
9	4 37 32.42	21 29 44.3	69.68	9	6 24 28.57	24 58 39.3	25.16
10	4 39 40.45	21 36 42.4	68.70	10	6 26 47.05	24 59 59.8	25.16
11	4 41 48.75	21 43 34.6	67.70	11	6 29 5.66	25 1 12.4	25.16
12	4 43 57.32	21 50 20.8	66.70	12	6 31 24.40	25 2 17.0	25.16
13	4 46 6.15	21 57 1.0	65.68	13	6 33 43.27	25 3 13.5	25.16
14	4 48 15.25	22 3 35.1	64.66	14	6 36 2.27	25 4 2.1	25.16
15	4 50 24.61	22 10 3.0	63.63	15	6 38 21.38	25 4 42.6	25.16
16	4 52 34.23	22 16 24.8	62.59	16	6 40 40.60	25 5 15.0	25.16
17	4 54 44.12	22 22 40.3	61.54	17	6 42 59.94	25 5 39.3	25.16
18	4 56 54.26	22 28 49.5	60.48	18	6 45 19.38	25 5 55.5	25.16
19	4 59 4.66	22 34 52.4	59.42	19	6 47 38.92	25 6 3.5	25.16
20	5 1 15.32	22 40 48.9	58.34	20	6 49 58.56	25 6 3.4	25.16
21	5 3 26.23	22 46 39.0	57.26	21	6 52 18.29	25 5 55.2	25.16
22	5 5 37.40	22 52 22.6	56.17	22	6 54 38.10	25 5 38.7	25.16
23	5 7 48.82	N. 22 57 59.6	55.07	23	6 56 58.00	N. 25 5 14.1	25.16
TUESDAY 18.				THURSDAY 20.			
0	5 10 0.49	N. 23 3 30.0	53.96	0	6 59 17.98	N. 25 4 41.2	25.16
1	5 12 12.41	23 8 53.8	52.85	1	7 1 38.03	25 4 0.1	25.16
2	5 14 24.57	23 14 10.9	51.73	2	7 3 58.15	25 3 10.7	25.16
3	5 16 36.97	23 19 21.2	50.59	3	7 6 18.34	25 2 13.1	25.16
4	5 18 49.62	23 24 24.8	49.45	4	7 8 38.58	25 1 7.3	25.16
5	5 21 2.50	23 29 21.5	48.31	5	7 10 58.88	24 59 53.1	25.16
6	5 23 15.63	23 34 11.4	47.15	6	7 13 19.23	24 58 30.7	25.16
7	5 25 28.99	23 38 54.3	45.99	7	7 15 39.62	24 57 0.0	25.16
8	5 27 42.57	23 43 30.2	44.82	8	7 18 0.05	24 55 21.0	25.16
9	5 29 56.39	23 47 59.1	43.64	9	7 20 20.53	24 53 33.7	25.16
10	5 32 10.44	23 52 21.0	42.46	10	7 22 41.03	24 51 38.1	25.16
11	5 34 24.71	23 56 35.7	41.26	11	7 25 1.56	24 49 34.2	25.16
12	5 36 39.20	24 0 43.3	40.06	12	7 27 22.11	24 47 22.0	25.16
13	5 38 53.91	24 4 43.7	38.86	13	7 29 42.68	24 45 1.6	25.16
14	5 41 8.83	24 8 36.8	37.64	14	7 32 3.27	24 42 32.8	25.16
15	5 43 23.96	24 12 22.7	36.42	15	7 34 23.86	24 39 55.7	25.16
16	5 45 39.30	24 16 1.2	35.20	16	7 36 44.46	24 37 10.4	25.16
17	5 47 54.85	24 19 32.4	33.96	17	7 39 5.06	24 34 16.7	25.16
18	5 50 10.60	24 22 56.1	32.72	18	7 41 25.65	24 31 14.8	25.16
19	5 52 26.54	24 26 12.5	31.47	19	7 43 46.24	24 28 4.6	25.16
20	5 54 42.69	24 29 21.3	30.22	20	7 46 6.81	24 24 46.1	25.16
21	5 56 59.02	24 32 22.6	28.96	21	7 48 27.37	24 21 19.3	25.16
22	5 59 15.54	24 35 16.4	27.70	22	7 50 47.91	24 17 44.3	25.16
23	6 1 32.25	24 38 2.6	26.42	23	7 53 8.42	24 14 1.1	25.16
24	6 3 49.13	N. 24 40 41.1	25.16	24	7 55 28.90	N. 24 10 9.6	25.16

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 21.				SUNDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	7 55 28.90	N. 24 10 9.6	39.95	0	9 46 16.41	N. 18 31 3.7	100.44
1	7 57 49.35	24 6 9.9	41.32	1	9 48 32.05	18 21 1.0	101.54
2	8 0 9.76	24 2 2.0	42.69	2	9 50 47.56	18 10 51.8	102.63
3	8 2 30.14	23 57 45.9	44.05	3	9 53 2.95	18 0 36.0	103.71
4	8 4 50.46	23 53 21.6	45.41	4	9 55 18.20	17 50 13.7	104.78
5	8 7 10.74	23 48 49.1	46.77	5	9 57 33.32	17 39 45.0	105.85
6	8 9 30.97	23 44 8.5	48.12	6	9 59 48.31	17 29 10.0	106.90
7	8 11 51.14	23 39 19.8	49.47	7	10 2 3.17	17 18 28.6	107.94
8	8 14 11.26	23 34 22.9	50.82	8	10 4 17.90	17 7 40.9	108.98
9	8 16 31.31	23 29 18.0	52.17	9	10 6 32.50	16 56 47.0	110.01
10	8 18 51.29	23 24 5.0	53.51	10	10 8 46.98	16 45 47.0	111.03
11	8 21 11.21	23 18 44.0	54.85	11	10 11 1.33	16 34 40.8	112.03
12	8 23 31.05	23 13 14.9	56.18	12	10 13 15.56	16 23 28.6	113.03
13	8 25 50.82	23 7 37.8	57.51	13	10 15 29.66	16 12 10.4	114.02
14	8 28 10.51	23 1 52.8	58.83	14	10 17 43.65	16 0 46.3	115.00
15	8 30 30.11	22 55 59.8	60.15	15	10 19 57.51	15 49 16.3	115.97
16	8 32 49.63	22 49 58.9	61.47	16	10 22 11.25	15 37 40.5	116.93
17	8 35 9.06	22 43 50.1	62.78	17	10 24 24.88	15 25 58.9	117.88
18	8 37 28.41	22 37 33.4	64.09	18	10 26 38.38	15 14 11.6	118.82
19	8 39 47.66	22 31 8.9	65.39	19	10 28 51.78	15 2 18.7	119.75
20	8 42 6.81	22 24 36.5	66.69	20	10 31 5.06	14 50 20.1	120.68
21	8 44 25.87	22 17 56.4	67.98	21	10 33 18.23	14 38 16.1	121.59
22	8 46 44.82	22 11 8.5	69.26	22	10 35 31.29	14 26 6.6	122.49
23	8 49 3.67	N. 22 4 12.9	70.55	23	10 37 44.24	N. 14 13 51.6	123.38
SATURDAY 22.				MONDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 51 22.42	N. 21 57 9.7	71.82	0	10 39 57.09	N. 14 1 31.4	124.26
1	8 53 41.06	21 49 58.7	73.09	1	10 42 9.83	13 49 5.8	125.13
2	8 55 59.58	21 42 40.2	74.35	2	10 44 22.48	13 36 35.0	125.99
3	8 58 18.90	21 35 14.1	75.61	3	10 46 35.02	13 23 59.1	126.84
4	9 0 36.30	21 27 40.4	76.86	4	10 48 47.47	13 11 18.0	127.68
5	9 2 54.49	21 19 59.2	78.11	5	10 50 59.82	12 58 32.0	128.50
6	9 5 12.56	21 12 10.6	79.35	6	10 53 12.08	12 45 41.0	129.32
7	9 7 30.51	21 4 14.5	80.58	7	10 55 24.25	12 32 45.0	130.13
8	9 9 48.33	20 56 11.0	81.81	8	10 57 36.34	12 19 44.3	130.92
9	9 12 6.04	20 48 0.1	83.03	9	10 59 48.34	12 6 38.7	131.71
10	9 14 23.63	20 39 42.0	84.24	10	11 2 0.26	11 53 28.5	132.48
11	9 16 41.09	20 31 16.5	85.45	11	11 4 12.10	11 40 13.6	133.24
12	9 18 58.43	20 22 43.9	86.64	12	11 6 23.86	11 26 54.2	133.99
13	9 21 15.64	20 14 4.0	87.83	13	11 8 35.55	11 13 30.3	134.73
14	9 23 32.72	20 5 17.0	89.02	14	11 10 47.17	11 0 1.9	135.45
15	9 25 49.68	19 56 22.9	90.19	15	11 12 58.72	10 46 29.2	136.17
16	9 28 6.50	19 47 21.7	91.36	16	11 15 10.21	10 32 52.2	136.87
17	9 30 23.20	19 38 13.6	92.53	17	11 17 21.63	10 19 10.9	137.57
18	9 32 39.77	19 28 58.4	93.68	18	11 19 33.00	10 5 25.5	138.25
19	9 34 56.20	19 19 36.3	94.83	19	11 21 44.31	9 51 36.0	138.91
20	9 37 12.51	19 10 7.4	95.97	20	11 23 55.57	9 37 42.6	139.57
21	9 39 28.68	19 0 31.6	97.10	21	11 26 6.78	9 23 45.1	140.22
22	9 41 44.72	18 50 49.0	98.22	22	11 28 17.95	9 9 43.8	140.85
23	9 44 0.63	18 40 59.7	99.33	23	11 30 29.07	8 55 38.7	141.47
24	9 46 16.41	N. 18 31 3.7		24	11 32 40.16	N. 8 41 29.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
TUESDAY 25.				THURSDAY 27.		
0	11 32 40.16	N. 8 41 29.9	142.08	0	13 18 2.62	S. 3 24 21.7
1	11 34 51.21	8 27 17.5	142.67	1	13 20 16.64	3 39 51.9
2	11 37 2.23	8 13 1.4	143.26	2	13 22 30.83	3 55 21.4
3	11 39 13.22	7 58 41.9	143.83	3	13 24 45.18	4 10 50.2
4	11 41 24.19	7 44 18.9	144.39	4	13 26 59.71	4 26 18.1
5	11 43 35.14	7 29 52.6	144.93	5	13 29 14.41	4 41 45.0
6	11 45 46.07	7 15 23.1	145.46	6	13 31 29.29	4 57 10.9
7	11 47 56.99	7 0 50.3	145.98	7	13 33 44.36	5 12 35.7
8	11 50 7.89	6 46 14.4	146.49	8	13 35 59.61	5 27 59.1
9	11 52 18.80	6 31 35.5	146.98	9	13 38 15.05	5 43 21.2
10	11 54 29.70	6 16 53.6	147.46	10	13 40 30.69	5 58 41.8
11	11 56 40.60	6 2 8.8	147.93	11	13 42 46.53	6 14 0.8
12	11 58 51.51	5 47 21.2	148.38	12	13 45 2.57	6 29 18.2
13	12 1 2.43	5 32 30.9	148.82	13	13 47 18.82	6 44 33.7
14	12 3 13.36	5 17 38.0	149.25	14	13 49 35.27	6 59 47.4
15	12 5 24.31	5 2 42.5	149.66	15	13 51 51.94	7 14 59.0
16	12 7 35.28	4 47 44.5	150.06	16	13 54 8.82	7 30 8.5
17	12 9 46.28	4 32 44.1	150.45	17	13 56 25.93	7 45 15.7
18	12 11 57.31	4 17 41.4	150.82	18	13 58 43.25	8 0 20.6
19	12 14 8.37	4 2 36.5	151.18	19	14 1 0.81	8 15 23.1
20	12 16 19.47	3 47 29.4	151.52	20	14 3 18.59	8 30 23.0
21	12 18 30.61	3 32 20.2	151.85	21	14 5 36.61	8 45 20.2
22	12 20 41.79	3 17 9.1	152.17	22	14 7 54.86	9 0 14.5
23	12 22 53.03	N. 3 1 56.1	152.47	23	14 10 13.36	S. 9 15 6.0
WEDNESDAY 26.				FRIDAY 28.		
0	12 25 4.32	N. 2 46 41.3	152.76	0	14 12 32.10	S. 9 29 54.5
1	12 27 15.67	2 31 24.8	153.03	1	14 14 51.08	9 44 39.8
2	12 29 27.08	2 16 6.6	153.29	2	14 17 10.31	9 59 21.9
3	12 31 38.56	2 0 46.9	153.53	3	14 19 29.79	10 14 0.6
4	12 33 50.10	1 45 25.7	153.76	4	14 21 49.52	10 28 35.8
5	12 36 1.73	1 30 3.1	153.97	5	14 24 9.51	10 43 7.5
6	12 38 13.43	1 14 39.3	154.17	6	14 26 29.76	10 57 35.4
7	12 40 25.22	0 59 14.3	154.35	7	14 28 50.27	11 11 59.6
8	12 42 37.10	0 43 48.2	154.52	8	14 31 11.04	11 26 19.8
9	12 44 49.07	0 28 21.1	154.67	9	14 33 32.08	11 40 36.0
10	12 47 1.14	N. 0 12 53.1	154.81	10	14 35 53.39	11 54 48.1
11	12 49 13.30	S. 0 2 35.8	154.93	11	14 38 14.97	12 8 55.9
12	12 51 25.57	0 18 5.3	155.03	12	14 40 36.81	12 22 59.3
13	12 53 37.95	0 33 35.5	155.12	13	14 42 58.93	12 36 58.3
14	12 55 50.45	0 49 6.2	155.20	14	14 45 21.33	12 50 52.6
15	12 58 3.07	1 4 37.4	155.25	15	14 47 44.00	13 4 42.3
16	13 0 15.81	1 20 8.9	155.29	16	14 50 6.96	13 18 27.1
17	13 2 28.67	1 35 40.7	155.32	17	14 52 30.19	13 32 7.0
18	13 4 41.67	1 51 12.6	155.33	18	14 54 53.71	13 45 41.8
19	13 6 54.80	2 6 44.6	155.32	19	14 57 17.50	13 59 11.5
20	13 9 8.07	2 22 16.5	155.30	20	14 59 41.58	14 12 35.9
21	13 11 21.49	2 37 48.3	155.25	21	15 2 5.95	14 25 54.9
22	13 13 35.05	2 53 19.8	155.20	22	15 4 30.59	14 39 8.4
23	13 15 48.76	3 8 51.0	155.12	23	15 6 55.53	14 52 16.3
24	13 18 2.62	S. 3 24 21.7		24	15 9 20.74	S. 15 5 18.5

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 29.				SUNDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 9 20.74	S. 15 5 18.5	129.39	0	16 8 50.23	S. 19 44 49.7	100.72
1	15 11 46.24	15 18 14.8	128.39	1	16 11 22.30	19 54 54.0	99.32
2	15 14 12.03	15 31 5.1	127.38	2	16 13 54.61	20 4 50.0	97.91
3	15 16 38.11	15 43 49.4	126.35	3	16 16 27.16	20 14 37.4	96.48
4	15 19 4.47	15 56 27.5	125.31	4	16 18 59.95	20 24 16.3	95.04
5	15 21 31.12	16 8 59.4	124.24	5	16 21 32.96	20 33 46.6	93.59
6	15 23 58.05	16 21 24.8	123.16	6	16 24 6.21	20 43 8.1	92.12
7	15 26 25.26	16 33 43.7	122.06	7	16 26 39.67	20 52 20.8	90.63
8	15 28 52.76	16 45 56.1	120.94	8	16 29 13.35	21 1 24.6	89.14
9	15 31 20.55	16 58 1.7	119.80	9	16 31 47.25	21 10 19.4	87.63
10	15 33 48.62	17 10 0.5	118.64	10	16 34 21.35	21 19 5.2	86.11
11	15 36 16.96	17 21 52.4	117.47	11	16 36 55.65	21 27 41.8	84.58
12	15 38 45.59	17 33 37.2	116.28	12	16 39 30.15	21 36 9.3	83.03
13	15 41 14.50	17 45 14.9	115.07	13	16 42 4.84	21 44 27.5	81.47
14	15 43 43.68	17 56 45.3	113.85	14	16 44 39.71	21 52 36.3	79.90
15	15 46 13.14	18 8 8.4	112.61	15	16 47 14.76	22 0 35.7	78.33
16	15 48 42.87	18 19 24.1	111.35	16	16 49 49.99	22 8 25.7	76.74
17	15 51 12.87	18 30 32.2	110.08	17	16 52 25.38	22 16 6.1	75.14
18	15 53 43.14	18 41 32.7	108.79	18	16 55 0.93	22 23 36.9	73.53
19	15 56 13.67	18 52 25.4	107.48	19	16 57 36.64	22 30 58.1	71.91
20	15 58 44.47	19 3 10.3	106.16	20	17 0 12.50	22 38 9.5	70.28
21	16 1 15.53	19 13 47.3	104.82	21	17 2 48.50	22 45 11.2	68.65
22	16 3 46.84	19 24 16.2	103.47	22	17 5 24.63	22 52 3.1	67.00
23	16 6 18.41	19 34 37.1	102.10	23	17 8 0.90	22 58 45.1	65.35
24	16 8 50.23	S. 19 44 49.7		24	17 10 37.28	S. 23 5 17.3	

PHASES OF THE MOON.

☾ First Quarter.....	^d ^h ^m 7 18 29.9
○ Full Moon.....	15 22 47.7
☾ Last Quarter.....	23 15 36.2
● New Moon.....	30 6 47.7

☾ Apogee.....	^d ^h 13 2
☾ Perigee.....	28 19

MEAN TIME.										
LUNAR DISTANCES.										
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
2	Venus	E.	28° 50' 15"	2315	27° 4' 37"	2331	25° 19' 23"	2349	23° 34' 1"	
3	SUN	W.	30° 10' 48"	2483	31° 52' 25"	2497	33° 33' 42"	2512	35° 14' 1"	
	Fomalhaut	E.	81° 36' 1"	2328	79° 50' 42"	2345	78° 5' 48"	2364	76° 21' 1"	
	α Pegasi	E.	99° 34' 33"	2572	97° 54' 59"	2584	96° 15' 42"	2597	94° 36' 1"	
4	SUN	W.	43° 33' 36"	2615	45° 12' 10"	2634	46° 50' 19"	2653	48° 28' 1"	
	Fomalhaut	E.	67° 46' 17"	2491	66° 4' 51"	2514	64° 23' 57"	2539	62° 43' 1"	
	α Pegasi	E.	86° 27' 7"	2698	84° 50' 25"	2719	83° 14' 11"	2741	81° 38' 1"	
5	SUN	W.	56° 30' 2"	2772	58° 5' 6"	2792	59° 39' 44"	2813	61° 13' 1"	
	Venus	W.	- - -	- - -	- - -	- - -	16° 3' 51"	2818	17° 37' 1"	
	Fomalhaut	E.	54° 31' 15"	2707	52° 54' 45"	2739	51° 18' 57"	2772	49° 43' 1"	
	α Pegasi	E.	73° 47' 24"	2889	72° 14' 51"	2918	70° 42' 55"	2946	69° 11' 1"	
	α Arietis	E.	116° 10' 9"	2582	114° 30' 49"	2597	112° 51' 50"	2613	111° 13' 1"	
6	SUN	W.	68° 58' 20"	2933	70° 29' 57"	2954	72° 1' 8"	2972	73° 31' 1"	
	Venus	W.	25° 26' 33"	2868	26° 59' 33"	2882	28° 32' 15"	2896	30° 4' 1"	
	Fomalhaut	E.	42° 0' 23"	3008	40° 30' 20"	3056	39° 1' 16"	3107	37° 33' 1"	
	α Arietis	E.	103° 5' 32"	2711	101° 29' 7"	2728	99° 53' 4"	2745	98° 17' 1"	
7	SUN	W.	80° 59' 58"	3085	82° 28' 26"	3102	83° 56' 33"	3119	85° 24' 1"	
	Venus	W.	37° 41' 54"	2986	39° 12' 24"	3001	40° 42' 36"	3015	42° 12' 1"	
	α Arietis	E.	90° 24' 35"	2845	88° 51' 6"	2862	87° 17' 59"	2878	85° 45' 1"	
	Jupiter	E.	- - -	- - -	- - -	- - -	120° 25' 10"	2719	118° 48' 1"	
8	SUN	W.	92° 38' 13"	3215	94° 4' 4"	3230	95° 29' 38"	3244	96° 54' 1"	
	Venus	W.	49° 37' 32"	3099	51° 5' 43"	3111	52° 33' 39"	3124	54° 1' 1"	
	α Arietis	E.	78° 6' 25"	2973	76° 35' 38"	2988	75° 5' 10"	3003	73° 35' 1"	
	Aldebaran	E.	108° 35' 5"	2860	107° 1' 55"	2874	105° 29' 3"	2887	103° 56' 1"	
	Jupiter	E.	110° 52' 35"	2806	109° 18' 15"	2819	107° 44' 12"	2832	106° 10' 1"	
9	SUN	W.	103° 57' 29"	3320	105° 21' 17"	3332	106° 44' 52"	3342	108° 8' 1"	
	Venus	W.	61° 16' 20"	3189	62° 42' 42"	3199	64° 8' 53"	3208	65° 34' 1"	
	α Arietis	E.	66° 8' 46"	3090	64° 40' 24"	3103	63° 12' 18"	3117	61° 44' 1"	
	Aldebaran	E.	96° 17' 15"	2956	94° 46' 7"	2966	93° 15' 11"	2976	91° 44' 1"	
	Jupiter	E.	98° 25' 26"	2901	96° 53' 8"	2910	95° 21' 2"	2920	93° 49' 1"	
10	SUN	W.	115° 2' 25"	3397	116° 24' 45"	3404	117° 46' 57"	3411	119° 9' 1"	
	Venus	W.	72° 42' 31"	3253	74° 7' 38"	3259	75° 32' 38"	3265	76° 57' 1"	
	α Arietis	E.	54° 29' 36"	3201	53° 3' 28"	3215	51° 37' 36"	3230	50° 12' 1"	
	Aldebaran	E.	84° 13' 36"	3026	82° 43' 55"	3032	81° 14' 22"	3039	79° 44' 1"	
	Jupiter	E.	86° 12' 28"	2969	84° 41' 36"	2976	83° 10' 53"	2982	81° 40' 1"	
11	Venus	W.	84° 0' 36"	3288	85° 25' 1"	3292	86° 49' 22"	3294	88° 13' 1"	
	α Aquilæ	W.	63° 16' 59"	4031	64° 28' 8"	4011	65° 39' 37"	3992	66° 51' 1"	
	α Arietis	E.	43° 8' 53"	3330	41° 45' 16"	3351	40° 22' 3"	3372	38° 59' 1"	
	Aldebaran	E.	72° 19' 41"	3070	70° 50' 55"	3074	69° 22' 14"	3078	67° 53' 1"	
	Jupiter	E.	74° 9' 3"	3012	72° 39' 5"	3015	71° 9' 11"	3018	69° 39' 1"	
	Mars	E.	115° 47' 55"	3115	114° 20' 3"	3118	112° 52' 15"	3121	111° 24' 1"	
12	Venus	W.	95° 14' 45"	3301	96° 38' 56"	3301	98° 3' 7"	3300	99° 27' 1"	
	α Aquilæ	W.	72° 54' 21"	3905	74° 7' 36"	3893	75° 21' 3"	3883	76° 34' 1"	
	Aldebaran	E.	60° 31' 29"	3094	59° 3' 12"	3095	57° 34' 56"	3096	56° 6' 1"	
	Jupiter	E.	62° 10' 57"	3031	60° 41' 23"	3031	59° 11' 49"	3032	57° 42' 1"	

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
2	Venus	E.	21 50 16	2393	20 6 31	2419	18 23 24	2450	16 41 1	2482
3	SUN	W.	36 55 13	2545	38 35 24	2561	40 15 13	2579	41 54 37	2597
	Fomalhaut	E.	74 37 21	2403	72 53 50	2423	71 10 48	2445	69 28 17	2467
	α Pegasi	E.	92 58 3	2626	91 19 44	2643	89 41 48	2661	88 4 15	2679
4	SUN	W.	50 5 19	2692	51 42 9	2712	53 18 33	2732	54 54 31	2752
	Fomalhaut	E.	61 3 55	2591	59 24 48	2618	57 46 18	2647	56 8 27	2676
	α Pegasi	E.	80 3 10	2787	78 28 25	2811	76 54 12	2836	75 20 31	2863
5	SUN	W.	62 47 40	2853	64 20 59	2874	65 53 51	2893	67 26 19	2914
	Venus	W.	19 12 1	2824	20 45 58	2832	22 19 44	2843	23 53 16	2855
	Fomalhaut	E.	48 9 32	2843	46 36 0	2880	45 3 16	2920	43 31 23	2962
	α Pegasi	E.	67 40 52	3007	66 10 48	3039	64 41 24	3073	63 12 41	3106
	α Arietis	E.	109 34 56	2645	107 57 2	2661	106 19 29	2678	104 42 19	2695
6	SUN	W.	75 2 19	3011	76 32 18	3030	78 1 54	3048	79 31 7	3066
	Venus	W.	31 36 45	2926	33 8 31	2941	34 39 58	2957	36 11 5	2971
	Fomalhaut	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	α Arietis	E.	96 42 6	2779	95 7 10	2795	93 32 36	2813	91 58 25	2829
7	SUN	W.	86 51 45	3153	88 18 51	3169	89 45 37	3184	91 12 5	3201
	Venus	W.	43 42 5	3045	45 11 22	3059	46 40 22	3073	48 9 5	3086
	α Arietis	E.	84 12 46	2910	82 40 41	2927	81 8 56	2942	79 37 30	2958
	Jupiter	E.	117 13 0	2749	115 37 25	2764	114 2 10	2779	112 27 13	2792
8	SUN	W.	98 19 56	3271	99 44 41	3284	101 9 11	3296	102 33 27	3308
	Venus	W.	55 28 47	3147	56 56 0	3158	58 22 59	3169	59 49 45	3178
	α Arietis	E.	72 5 11	3032	70 35 38	3047	69 6 23	3061	67 37 26	3075
	Aldebaran	E.	102 24 7	2911	100 52 2	2923	99 20 12	2935	97 48 37	2945
	Jupiter	E.	104 36 56	2857	103 3 42	2868	101 30 42	2880	99 57 57	2891
9	SUN	W.	109 31 26	3362	110 54 26	3371	112 17 16	3380	113 39 55	3388
	Venus	W.	67 0 42	3225	68 26 22	3231	69 51 54	3239	71 17 17	3247
	α Arietis	E.	60 16 57	3145	58 49 42	3159	57 22 44	3173	55 56 2	3186
	Aldebaran	E.	90 13 56	2994	88 43 36	3002	87 13 26	3010	85 43 26	3018
	Jupiter	E.	92 17 27	2938	90 45 57	2946	89 14 37	2955	87 43 28	2962
10	SUN	W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Venus	W.	78 22 18	3275	79 46 59	3278	81 11 36	3282	82 36 8	3286
	α Arietis	E.	48 46 46	3261	47 21 49	3278	45 57 10	3294	44 32 51	3312
	Aldebaran	E.	78 15 41	3051	76 46 31	3056	75 17 28	3062	73 48 32	3066
	Jupiter	E.	80 9 50	2993	78 39 29	2999	77 9 15	3003	75 39 6	3008
11	Venus	W.	89 37 56	3298	91 2 10	3299	92 26 23	3301	93 50 34	3301
	α Aquilæ	W.	68 3 30	3958	69 15 51	3943	70 28 27	3929	71 41 17	3917
	α Arietis	E.	37 36 53	3422	36 15 1	3449	34 53 40	3480	33 32 53	3515
	Aldebaran	E.	66 25 5	3085	64 56 37	3087	63 28 12	3089	61 59 49	3091
	Jupiter	E.	68 9 35	3024	66 39 52	3026	65 10 11	3028	63 40 33	3030
	Mars	E.	109 56 49	3125	108 29 10	3128	107 1 34	3128	105 33 58	3129
12	Venus	W.	100 51 32	3298	102 15 46	3296	103 40 2	3295	105 4 19	3293
	α Aquilæ	W.	77 48 27	3864	79 2 23	3856	80 16 28	3850	81 30 39	3842
	Aldebaran	E.	54 38 29	3097	53 10 16	3099	51 42 5	3099	50 13 54	3100
	Jupiter	E.	56 12 43	3032	54 43 10	3032	53 13 37	3031	51 44 3	3031

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
12	Mars E.	104° 6' 24"	3130	102° 38' 51"	3131	101° 11' 19"	3130	99° 43' 41"	
13	Venus W.	106 28 39	3290	107 53 2	3288	109 17 27	3286	110 41 3	
	α Aquilæ W.	82 44 58	3836	83 59 23	3831	85 13 53	3826	86 28 4	
	Fomalhaut W.	48 31 1	3387	49 53 32	3373	51 16 19	3359	52 39 4	
	Aldebaran E.	48 45 44	3099	47 17 33	3099	45 49 22	3100	44 21 1	
	Jupiter E.	50 14 29	3030	48 44 53	3028	47 15 15	3026	45 45 3	
	Mars E.	92 25 53	3125	90 58 14	3123	89 30 32	3121	88 2 4	
	Pollux E.	92 54 0	3084	91 25 31	3083	89 57 1	3081	88 28 4	
14	Venus W.	117 45 16	3265	119 10 9	3260	120 35 8	3255	122 0 1	
	α Aquilæ W.	92 42 15	3811	93 57 6	3811	95 11 57	3811	96 26 4	
	Fomalhaut W.	59 38 7	3291	61 2 29	3281	62 27 3	3272	63 51 4	
	Aldebaran E.	37 0 11	3097	35 31 58	3097	34 3 45	3096	32 35 3	
	Jupiter E.	38 16 36	3012	36 46 38	3010	35 16 37	3006	33 46 3	
	Mars E.	80 43 20	3103	79 15 14	3100	77 47 5	3096	76 18 3	
	Pollux E.	81 5 9	3067	79 36 19	3065	78 7 27	3061	76 38 3	
15	α Aquilæ W.	102 40 29	3829	103 55 1	3836	105 9 26	3843	106 23 3	
	Fomalhaut W.	70 58 1	3222	72 23 44	3214	73 49 37	3207	75 15 3	
	Jupiter E.	26 14 56	2983	24 44 22	2978	23 13 42	2974	21 42 3	
	Mars E.	68 56 21	3070	67 27 35	3065	65 58 42	3060	64 29 3	
	Pollux E.	69 12 42	3039	67 43 18	3035	66 13 49	3031	64 44 3	
16	Fomalhaut W.	82 27 47	3166	83 54 37	3159	85 21 35	3153	86 48 3	
	α Pegasi W.	65 29 16	3497	66 49 44	3480	68 10 31	3463	69 31 3	
	Mars E.	57 3 9	3026	55 33 29	3021	54 3 42	3014	52 33 3	
	Pollux E.	57 15 2	3004	55 44 54	2999	54 14 40	2993	52 44 3	
	Regulus E.	93 17 33	3004	91 47 25	2998	90 17 10	2993	88 46 3	
17	Fomalhaut W.	94 5 52	3119	95 33 39	3114	97 1 32	3108	98 29 3	
	α Pegasi W.	76 20 59	3384	77 43 34	3372	79 6 22	3362	80 29 3	
	Mars E.	45 2 17	2976	43 31 34	2970	42 0 43	2963	40 29 3	
	Pollux E.	45 11 3	2964	43 40 5	2958	42 9 0	2954	40 37 3	
	Regulus E.	81 13 11	2958	79 42 6	2952	78 10 53	2946	76 39 3	
18	α Pegasi W.	87 27 7	3307	88 51 10	3301	90 15 21	3294	91 39 3	
	α Arietis W.	44 3 4	3143	45 30 21	3124	46 58 2	3105	48 26 3	
	Jupiter W.	- - -	-	- - -	-	- - -	-	- - -	
	Mars E.	32 52 34	2920	31 20 41	2913	29 48 38	2905	28 16 3	
	Pollux E.	33 0 23	2926	31 28 37	2923	29 56 47	2917	28 24 3	
	Regulus E.	69 0 50	2908	67 28 41	2902	65 56 24	2894	64 23 3	
	Saturn E.	120 9 13	2935	118 37 38	2927	117 5 53	2919	115 33 3	
19	α Arietis W.	55 51 34	3009	57 21 36	2994	58 51 56	2981	60 22 3	
	Aldebaran W.	24 17 52	2909	25 49 59	2894	27 22 26	2880	28 55 3	
	Jupiter W.	23 1 9	2788	24 35 53	2779	26 10 48	2771	27 45 3	
	Regulus E.	56 39 33	2852	55 6 13	2845	53 32 44	2838	51 59 3	
	Saturn E.	107 52 2	2873	106 19 8	2866	104 46 5	2856	103 12 3	
	Spica η E.	110 41 15	2863	109 8 9	2856	107 34 53	2847	106 1 3	
20	α Arietis W.	67 59 38	2905	69 31 51	2894	71 4 18	2881	72 37 3	
	Aldebaran W.	36 43 18	2802	38 17 43	2791	39 52 23	2779	41 27 3	
	Jupiter W.	35 44 5	2720	37 20 18	2711	38 56 43	2702	40 33 3	

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
2	Mars E.	98 16 14 3129		96 48 40 3129		95 21 6 3128		93 53 30 3127	
3	Venus W.	112 6 27 3279		113 31 3 3276		114 55 43 3272		116 20 27 3268	
	α Aquilæ W.	87 43 8 3819		88 57 50 3815		90 12 36 3813		91 27 25 3812	
	Fomalhaut W.	54 2 41 3334		55 26 13 3323		56 49 58 3311		58 13 57 3301	
	Aldebaran E.	42 53 0 3099		41 24 49 3098		39 56 37 3097		38 28 24 3097	
	Jupiter E.	44 15 53 3022		42 46 8 3021		41 16 21 3018		39 46 30 3015	
	Mars E.	86 35 1 3116		85 7 11 3114		83 39 18 3110		82 11 21 3107	
	Pollux E.	86 59 54 3078		85 31 17 3075		84 2 37 3073		82 33 55 3070	
4	Venus W.	- - - - -		- - - - -		- - - - -		- - - - -	
	α Aquilæ W.	97 41 38 3814		98 56 26 3817		100 11 11 3821		101 25 52 3824	
	Fomalhaut W.	65 16 42 3254		66 41 47 3246		68 7 2 3237		69 32 27 3230	
	Aldebaran E.	31 7 19 3098		29 39 7 3100		28 10 58 3101		26 42 50 3104	
	Jupiter E.	32 16 22 2999		30 46 8 2995		29 15 49 2991		27 45 25 2987	
	Mars E.	74 50 31 3088		73 22 7 3083		71 53 37 3079		70 25 2 3074	
	Pollux E.	75 9 29 3055		73 40 24 3052		72 11 15 3048		70 42 1 3043	
5	α Aquilæ W.	107 37 53 3861		108 51 52 3871		110 5 41 3883		111 19 18 3897	
	Fomalhaut W.	76 41 47 3193		78 8 5 3186		79 34 31 3179		81 1 5 3172	
	Jupiter E.	20 12 6 2965		18 41 9 2960		17 10 6 2955		- - - - -	
	Mars E.	63 0 37 3050		61 31 26 3043		60 2 7 3038		58 32 41 3033	
	Pollux E.	63 14 36 3022		61 44 51 3018		60 15 0 3014		58 45 4 3009	
6	Fomalhaut W.	88 15 52 3141		89 43 12 3136		91 10 38 3129		92 38 12 3124	
	α Pegasi W.	70 52 58 3434		72 14 36 3421		73 36 29 3408		74 58 37 3395	
	Mars E.	51 3 45 3002		49 33 35 2996		48 3 17 2989		46 32 51 2983	
	Pollux E.	51 13 53 2984		49 43 20 2979		48 12 41 2974		46 41 55 2969	
	Regulus E.	87 16 19 2981		85 45 42 2976		84 14 59 2970		82 44 9 2964	
7	Fomalhaut W.	99 57 37 3099		101 25 48 3094		102 54 5 3089		104 22 28 3086	
	α Pegasi W.	81 52 34 3342		83 15 57 3333		84 39 30 3324		86 3 14 3316	
	Mars E.	38 58 36 2949		37 27 19 2942		35 55 53 2935		34 24 18 2928	
	Pollux E.	39 6 32 2944		37 35 9 2939		36 3 39 2935		34 32 4 2930	
	Regulus E.	75 8 4 2934		73 36 28 2928		72 4 44 2920		70 32 51 2914	
8	α Pegasi W.	93 4 7 3281		94 28 41 3275		95 53 22 3270		97 18 8 3265	
	α Arietis W.	49 54 32 3070		51 23 18 3053		52 52 25 3038		54 21 50 3023	
	Jupiter W.	16 43 53 2818		18 17 57 2811		19 52 11 2803		21 26 35 2795	
	Mars E.	26 44 2 2890		25 11 30 2882		23 38 48 2873		22 5 55 2866	
	Pollux E.	26 52 48 2913		25 20 46 2911		23 48 41 2909		22 16 34 2910	
	Regulus E.	62 51 22 2880		61 18 38 2874		59 45 46 2866		58 12 44 2859	
	Saturn E.	114 1 55 2904		112 29 41 2897		110 57 18 2889		109 24 45 2881	
9	α Arietis W.	61 53 25 2954		63 24 35 2942		64 56 0 2930		66 27 41 2917	
	Aldebaran W.	30 28 15 2852		32 1 36 2838		33 35 14 2826		35 9 8 2814	
	Jupiter W.	29 21 10 2756		30 56 36 2747		32 32 14 2738		34 8 4 2729	
	Regulus E.	50 25 17 2824		48 51 20 2815		47 17 12 2809		45 42 56 2801	
	Saturn E.	101 39 25 2840		100 5 49 2831		98 32 1 2822		96 58 2 2813	
	Spica η E.	104 27 47 2828		102 53 56 2821		101 19 55 2811		99 45 41 2802	
20	α Arietis W.	74 10 0 2858		75 43 13 2846		77 16 41 2835		78 50 24 2823	
	Aldebaran W.	43 2 30 2756		44 37 55 2744		46 13 36 2733		47 49 32 2722	
	Jupiter W.	42 10 11 2683		43 47 13 2673		45 24 29 2663		47 1 59	

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
			^o ⁱ ^u		^o ⁱ ^u		^o ⁱ ^u		^o ⁱ ^u
20	Regulus	E.	44 8 29	2793	42 33 52	2786	40 59 6	2779	39 24
	Saturn	E.	95 23 51	2805	93 49 29	2795	92 14 54	2785	90 40
	Spica π	E.	98 11 16	2792	96 36 38	2784	95 1 49	2773	93 26
21	α Arietis	W.	80 24 22	2811	81 58 35	2800	83 33 3	2788	85 7
	Aldebaran	W.	49 25 43	2711	51 2 9	2699	52 38 50	2687	54 15
	Jupiter	W.	48 39 42	2643	50 17 39	2632	51 55 50	2621	53 34
	Saturn	E.	82 42 58	2726	81 6 52	2714	79 30 31	2704	77 53
	Spica π	E.	85 28 24	2715	83 52 4	2705	82 15 30	2694	80 38
	SUN	E.	122 30 11	3043	121 0 51	3031	119 31 17	3020	118 1
22	α Arietis	W.	93 5 4	2721	94 41 16	2709	96 17 44	2698	97 54
	Aldebaran	W.	62 24 30	2616	64 3 3	2604	65 41 53	2591	67 21
	Jupiter	W.	61 50 6	2555	63 30 3	2543	65 10 16	2532	66 50
	Mars	W.	17 47 1	2610	19 25 42	2597	21 4 41	2585	22 43
	Saturn	E.	69 47 21	2636	68 9 15	2624	66 30 53	2613	64 52
	Spica π	E.	72 31 6	2629	70 52 51	2618	69 14 20	2607	67 35
	SUN	E.	110 28 42	2946	108 57 21	2934	107 25 45	2920	105 53
23	Aldebaran	W.	75 40 55	2515	77 21 48	2502	79 2 58	2489	80 44
	Jupiter	W.	75 17 26	2457	76 59 39	2445	78 42 10	2432	80 24
	Pollux	W.	31 31 41	2534	33 12 7	2517	34 52 56	2502	36 34
	Mars	W.	31 4 53	2505	32 46 0	2491	34 27 26	2477	36 9
	Saturn	E.	56 34 53	2538	54 54 32	2525	53 13 54	2512	51 32
	Spica π	E.	59 17 50	2538	57 37 30	2528	55 56 55	2515	54 16
	SUN	E.	98 10 12	2839	96 36 35	2826	95 2 41	2811	93 28
24	Aldebaran	W.	89 16 30	2409	90 59 52	2396	92 43 32	2382	94 27
	Jupiter	W.	89 3 42	2354	90 48 23	2340	92 33 24	2327	94 18
	Pollux	W.	45 5 10	2415	46 48 24	2399	48 32 0	2386	50 15
	Mars	W.	44 42 47	2394	46 26 30	2381	48 10 32	2366	49 54
	Saturn	E.	43 3 46	2434	41 21 0	2422	39 37 56	2408	37 54
	Spica π	E.	45 47 53	2451	44 5 31	2441	42 22 54	2432	40 40
	SUN	E.	85 32 45	2726	83 56 40	2712	82 20 16	2697	80 43
25	Jupiter	W.	103 10 11	2249	104 57 26	2237	106 44 59	2224	108 32
	Pollux	W.	59 0 36	2303	60 46 31	2289	62 32 46	2276	64 19
	Mars	W.	58 41 47	2284	60 28 10	2271	62 14 52	2258	64 1
	Saturn	E.	29 13 9	2335	27 28 0	2324	25 42 35	2313	23 56
	SUN	E.	72 35 7	2612	70 56 28	2599	69 17 31	2585	67 38
26	Pollux	W.	73 16 51	2203	75 5 14	2191	76 53 55	2180	78 42
	Mars	W.	73 1 47	2182	74 50 41	2171	76 39 52	2159	78 29
	Regulus	W.	37 20 48	2227	39 8 35	2214	40 56 42	2201	42 45
	SUN	E.	59 17 22	2507	57 36 19	2495	55 54 59	2484	54 13
27	Pollux	W.	87 51 29	2122	89 41 54	2114	91 32 31	2107	93 23
	Mars	W.	87 40 44	2099	89 31 45	2090	91 22 59	2083	93 14
	Regulus	W.	51 51 47	2134	53 41 54	2126	55 32 14	2117	57 22
	SUN	E.	45 41 33	2422	43 58 30	2414	42 15 15	2405	40 31
28	Mars	W.	102 34 15	2045	104 26 39	2041	106 19 10	2037	108 11
	Regulus	W.	66 38 17	2079	68 29 49	2075	70 21 27	2072	72 13
	SUN	E.	31 52 8	2370	30 7 50	2366	28 23 26	2362	26 38

MEAN TIME.

LUNAR DISTANCES.

Days of the Month.	Star's Name and Position.		Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
			^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
20	Regulus	E.	37 49 5	2765	36 13 51	2758	34 38 28	2751	33 2 56	2744
	Saturn	E.	89 5 7	2766	87 29 55	2756	85 54 29	2746	84 18 50	2736
	Spica π	E.	91 51 32	2754	90 16 4	2745	88 40 24	2735	87 4 31	2725
21	α Arietis	W.	86 42 44	2766	88 17 56	2754	89 53 24	2743	91 29 7	2733
	Aldebaran	W.	55 53 0	2664	57 30 28	2652	59 8 13	2641	60 46 13	2628
	Jupiter	W.	55 12 56	2600	56 51 51	2590	58 31 0	2578	60 10 25	2567
	Saturn	E.	76 17 8	2682	74 40 4	2671	73 2 45	2659	71 25 10	2649
	Spica π	E.	79 1 39	2673	77 24 23	2662	75 46 52	2652	74 9 7	2640
	Sun	E.	116 31 26	2996	115 1 8	2984	113 30 35	2971	111 59 46	2959
22	α Arietis	W.	99 31 23	2676	101 8 35	2666	102 46 1	2655	104 23 42	2644
	Aldebaran	W.	69 0 24	2566	70 40 6	2553	72 20 5	2541	74 0 21	2528
	Jupiter	W.	68 31 31	2507	70 12 34	2495	71 53 54	2483	73 35 31	2470
	Mars	W.	24 23 31	2558	26 3 24	2545	27 43 35	2531	29 24 5	2518
	Saturn	E.	63 13 21	2588	61 34 9	2576	59 54 41	2564	58 14 56	2551
	Spica π	E.	65 56 33	2584	64 17 16	2572	62 37 43	2561	60 57 55	2549
	Sun	E.	104 21 42	2894	102 49 16	2880	101 16 32	2867	99 43 31	2853
23	Aldebaran	W.	82 26 14	2463	84 8 20	2449	85 50 45	2436	87 33 28	2423
	Jupiter	W.	82 8 6	2406	83 51 32	2393	85 35 17	2380	87 19 20	2367
	Pollux	W.	38 15 37	2472	39 57 29	2458	41 39 42	2443	43 22 15	2428
	Mars	W.	37 51 15	2450	39 33 38	2436	41 16 22	2423	42 59 24	2408
	Saturn	E.	49 51 44	2487	48 10 12	2474	46 28 22	2460	44 46 13	2448
	Spica π	E.	52 34 56	2493	50 53 33	2482	49 11 55	2471	47 30 1	2461
	Sun	E.	91 53 57	2783	90 19 7	2769	88 43 59	2754	87 8 31	2741
24	Aldebaran	W.	96 11 50	2357	97 56 27	2343	99 41 24	2330	101 26 39	2318
	Jupiter	W.	96 4 23	2301	97 50 21	2288	99 36 38	2275	101 23 15	2262
	Pollux	W.	52 0 11	2357	53 44 47	2343	55 29 44	2330	57 15 0	2316
	Mars	W.	51 39 37	2339	53 24 40	2326	55 10 2	2311	56 55 45	2299
	Saturn	E.	36 10 52	2383	34 26 53	2371	32 42 36	2358	30 58 1	2346
	Spica π	E.	38 57 3	2415	37 13 50	2407	35 30 26	2402	33 46 54	2396
	Sun	E.	79 6 29	2669	77 29 7	2655	75 51 26	2641	74 13 26	2627
25	Jupiter	W.	110 21 2	2199	112 9 31	2186	113 58 19	2175	115 47 24	2163
	Pollux	W.	66 6 13	2251	67 53 25	2238	69 40 56	2227	71 28 44	2214
	Mars	W.	65 49 14	2232	67 36 54	2219	69 24 53	2206	71 13 11	2194
	Saturn	E.	22 10 59	2293	20 24 49	2285	18 38 28	2276	- - -	- - -
	Sun	E.	65 58 41	2558	64 18 48	2545	62 38 37	2532	60 58 8	2520
26	Pollux	W.	80 32 6	2159	82 21 35	2149	84 11 19	2140	86 1 17	2131
	Mars	W.	80 19 6	2138	82 9 7	2127	83 59 25	2118	85 49 57	2108
	Regulus	W.	44 33 54	2176	46 22 57	2165	48 12 18	2155	50 1 54	2143
	Sun	E.	52 31 31	2461	50 49 23	2450	49 7 0	2441	47 24 24	2431
27	Pollux	W.	95 14 19	2093	97 5 29	2087	98 56 48	2082	100 48 15	2077
	Mars	W.	95 6 3	2068	96 57 52	2061	98 49 51	2055	100 41 59	2050
	Regulus	W.	59 13 33	2101	61 4 30	2095	62 55 37	2089	64 46 53	2084
	Sun	E.	38 48 10	2391	37 4 22	2384	35 20 26	2379	33 36 21	2373
28	Mars	W.	110 4 26	2032	111 57 10	2030	113 49 57	2030	115 42 45	2030
	Regulus	W.	74 4 57	2066	75 56 48	2065	77 48 41	2064	79 40 35	2064
	Sun	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 12^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>				<i>Apparent East.</i>			
1	● 1		3	2	○			4
2			3		1	○	2	4
3	○ 2			3		○	1 4	
4			2	1	4	○	3	
5			4			○	2 1	3
6		4			1	○		2 3
7		4		2	○	3 1		
8		4		3	2	○		1 ●
9		4	3		1	○	2	
10			4	3		○	2 1	
11				2	1	○	3	
12						○	2 1	3
13					1	○	2 4 3	
14				2		○	3 1	4
15			3	2	1	○		4
16	1 ○		3			○	2	4
17				3		○	1 2	4
18			2	1	○	3		4
19	● 2					○	1	4 3
20				1	○	4	2	3
21				4	2	○	3 1	
22			4	3	2	1	○	
23		4	3			○	1	2
24		4		3		○	2	● 1
25		4		2	1	○		● 3
26		4				○	1	3
27			4	1		○	2	3
28				4	2	○	3 1	
29				2	3	1	○	4
30			3			○	1	2 4

This Table represents, at 12^h after *Mean Noon* of each day of the month, the relative positions of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page; —the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on the disc of Jupiter*, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

SATELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	1*	^h 9 ^m 16 ^s 38.7	^h 23 ^m 59 ^s 20.3	Im.
	3	3 45 7.0	18 34 47.3	Im.
	4	22 13 38.2	13 10 17.1	Im.
	6*	16 42 7.0	7 45 44.6	Im.
	8*	11 10 39.4	2 21 15.6	Im.
	10	5 39 9.5	20 56 44.4	Im.
	12	0 7 42.7	15 32 16.3	Im.
	13*	18 36 14.0	10 7 46.3	Im.
	15*	13 4 48.3	4 43 19.2	Im.
	17*	7 33 20.5	23 18 50.0	Im.
	19	2 1 56.2	17 54 24.5	Im.
	20	20 30 29.5	12 29 56.4	Im.
	22*	14 59 6.2	7 5 31.8	Im.
	24*	9 27 40.7	1 41 4.9	Im.
	26	3 56 18.4	20 16 41.4	Im.
II.	1*	15 5 38.6	5 49 17.6	Im.
	5	4 23 40.9	19 21 20.7	Im.
	8*	17 42 33.8	8 54 14.4	Im.
	12*	7 0 36.8	22 26 18.2	Im.
	15	20 19 27.3	11 59 9.6	Im.
	19*	9 37 32.2	1 31 15.2	Im.
	22	22 56 19.5	15 4 3.5	Im.
	26*	12 14 25.4	4 36 10.2	Im.
III.	3	21 25 17.5	12 17 51.9	Im.
	3	23 44 51.4	14 37 48.8	Em.
	11	1 24 51.9	16 45 41.6	Im.
	18	5 24 39.9	21 13 44.9	Im.
	25*	9 25 14.7	1 42 35.1	Im.

APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SHAD	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	Eg
I.	d h m	d h m	d h m	d h m	d h m	d
		1* 2 53	2* 21 54	2* 0 9	2 21 22	2* 2
		3 21 26	4 16 27	4 18 42	4 15 58	4 1
		5 15 59	5 11 0	5 13 15	5 10 33	5 1
	In	6 10 32	7* 5 33	7* 7 48	7* 5 9	7*
		8* 5 4	9* 0 5	9* 2 21	9* 23 44	9*
		10* 23 37	11 18 38	11 20 54	11 18 20	11 2
	the	12 18 10	12 13 11	12 15 27	12 12 55	12 1
		13 12 43	14* 7 44	14* 10 0	14* 7 31	14*
		15* 7 16	16* 2 17	16* 4 33	16* 2 7	16*
	Shadow.	17* 1 49	18 20 50	18* 23 5	18 20 42	18* 2
		19 20 22	19 15 23	20 17 38	19 15 18	20 1
		20 14 55	21* 9 55	21 12 11	21* 9 53	21 1
		22* 9 27	23* 4 28	23* 6 44	23* 4 29	23*
		24* 4 0	25* 23 1	25* 1 17	25* 23 5	25*
		26* 22 33	27 17 34	27 19 49	27 17 40	27 1
	27 14 50	28 17 6	28 12 6	28 14 22	28 12 16	28 1
	29* 9 23	29 11 39	30* 6 39	30* 8 55	30* 6 52	30* 9
II.		1 9 39	3* 1 45	3* 4 20	3* 0 11	3* 2
	In	5* 23 1	7 15 8	7 17 42	6 13 43	7 16
		8 12 23	10* 4 30	10* 7 5	10* 3 14	10* 5
	the	12* 1 45	14 17 51	14 20 26	14 16 46	14 1
		15 15 8	17* 7 13	17* 9 48	17* 6 17	17* 8
	Shadow.	19* 4 28	21 20 34	21* 23 9	21 19 49	21* 2
		23 17 50	24* 9 55	24 12 31	24* 9 21	24 1
		26* 7 11	28* 23 17	28* 1 52	28* 22 53	28* 1
	30 17 57	30 20 33				
III.	4 14 56	4 17 4	7* 4 49	7* 6 58	7* 2 27	7* 4
	In the	11 20 51	14* 8 34	14 10 44	14* 6 55	14* 9
	Shadow.	18* 0 36	21 12 18	21 14 28	21 11 24	21 1
		25* 4 20	28 16 1	29 18 12	28 15 52	29 1

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time		Mean Equinoctial Time, adding 0 ^d 505048.	From Mean Noon of January 1.	
	At Mean Midnight,				of Transit of the			Days of the Year.	Fractions of the Year.
	Logarithms of				First Point of				
	A	B	C	D	Aries.				
					h m s	Days.			
1	+1.1611	+1.1087	+9.6739	-0.2741	9 17 18.24	223	304	.832	
2	1.1548	1.1179	9.6763	0.2717	9 13 22.34	224	305	.835	
3	1.1483	1.1268	9.6788	0.2693	9 9 26.43	225	306	.838	
4	+1.1415	+1.1354	+9.6812	-0.2668	9 5 30.52	226	307	.841	
5	1.1345	1.1436	9.6837	0.2643	9 1 34.61	227	308	.843	
6	1.1273	1.1516	9.6862	0.2618	8 57 38.70	228	309	.846	
7	+1.1197	+1.1593	+9.6887	-0.2592	8 53 42.79	229	310	.849	
8	1.1119	1.1668	9.6912	0.2566	8 49 46.88	230	311	.851	
9	1.1039	1.1740	9.6937	0.2540	8 45 50.97	231	312	.854	
10	+1.0955	+1.1809	+9.6962	-0.2514	8 41 55.06	232	313	.857	
11	1.0868	1.1876	9.6988	0.2488	8 37 59.15	233	314	.860	
12	1.0778	1.1941	9.7013	0.2462	8 34 3.24	234	315	.862	
13	+1.0685	+1.2004	+9.7039	-0.2436	8 30 7.33	235	316	.865	
14	1.0588	1.2064	9.7064	0.2410	8 26 11.42	236	317	.868	
15	1.0488	1.2122	9.7090	0.2385	8 22 15.51	237	318	.871	
16	+1.0384	+1.2179	+9.7116	-0.2360	8 18 19.60	238	319	.873	
17	1.0276	1.2233	9.7142	0.2335	8 14 23.69	239	320	.876	
18	1.0164	1.2285	9.7168	0.2311	8 10 27.78	240	321	.879	
19	+1.0048	+1.2335	+9.7195	-0.2287	8 6 31.87	241	322	.882	
20	0.9927	1.2383	9.7221	0.2264	8 2 35.96	242	323	.884	
21	0.9801	1.2430	9.7247	0.2241	7 58 40.04	243	324	.887	
22	+0.9670	+1.2474	+9.7274	-0.2219	7 54 44.13	244	325	.890	
23	0.9533	1.2517	9.7301	0.2198	7 50 48.22	245	326	.893	
24	0.9390	1.2558	9.7327	0.2177	7 46 52.31	246	327	.895	
25	+0.9241	+1.2598	+9.7354	-0.2158	7 42 56.40	247	328	.898	
26	0.9085	1.2636	9.7380	0.2140	7 39 0.49	248	329	.901	
27	0.8921	1.2672	9.7407	0.2122	7 35 4.58	249	330	.904	
28	+0.8749	+1.2706	+9.7434	-0.2106	7 31 8.67	250	331	.906	
29	0.8568	1.2739	9.7461	0.2091	7 27 12.76	251	332	.909	
30	0.8379	1.2771	9.7487	0.2078	7 23 16.84	252	333	.912	
31	+0.8180	+1.2801	+9.7514	-0.2065	7 19 20.93	253	334	.914	

AT APPARENT NOON.

Days of the Week.	Days of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtr. from added to Apparent Time.
		Right Ascension.	Diff. for 1 hour.	Declination.	Diff. for 1 hour.		
Mon.	1	^h 16 ^m 28 ^s 36·78	^s 10·815	^o 21 ⁱ 47 ⁿ 57·8	ⁿ 23·02	^m 1 10·22	^m 10 48·34
Tues.	2	16 32 56·34	10·841	21 57 10·2	21·96	1 10·31	10 25·40
Wed.	3	16 37 16·52	10·866	22 5 57·2	20·89	1 10·39	10 1·84
Thur.	4	16 41 37·31	10·890	22 14 18·6	19·81	1 10·47	9 37·68
Frid.	5	16 45 58·67	10·913	22 22 14·0	18·72	1 10·55	9 12·94
Sat.	6	16 50 20·56	10·933	22 29 43·2	17·62	1 10·62	8 47·68
Sun.	7	16 54 42·95	10·953	22 36 46·0	16·51	1 10·69	8 21·91
Mon.	8	16 59 5·83	10·973	22 43 22·2	15·38	1 10·76	7 55·67
Tues.	9	17 3 29·17	10·990	22 49 31·4	14·26	1 10·82	7 28·97
Wed.	10	17 7 52·93	11·007	22 55 13·6	13·12	1 10·87	7 1·82
Thur.	11	17 12 17·09	11·022	23 0 28·5	11·98	1 10·93	6 34·30
Frid.	12	17 16 41·62	11·036	23 5 16·1	10·83	1 10·98	6 6·41
Sat.	13	17 21 6·49	11·049	23 9 36·1	9·68	1 11·02	5 38·18
Sun.	14	17 25 31·66	11·062	23 13 28·4	8·52	1 11·06	5 9·65
Mon.	15	17 29 57·14	11·071	23 16 53·0	7·36	1 11·10	4 40·81
Tues.	16	17 34 22·84	11·082	23 19 49·6	6·20	1 11·13	4 11·73
Wed.	17	17 38 48·80	11·089	23 22 18·3	5·03	1 11·16	3 42·43
Thur.	18	17 43 14·94	11·096	23 24 18·9	3·85	1 11·18	3 12·92
Frid.	19	17 47 41·25	11·102	23 25 51·3	2·67	1 11·20	2 43·25
Sat.	20	17 52 7·70	11·106	23 26 55·4	1·50	1 11·21	2 13·44
Sun.	21	17 56 34·25	11·109	23 27 31·5	0·32	1 11·22	1 43·52
Mon.	22	18 1 0·87	11·112	23 27 39·2	0·86	1 11·22	1 13·54
Tues.	23	18 5 27·55	11·111	23 27 18·5	2·04	1 11·22	0 43·51
Wed.	24	18 9 54·21	11·110	23 26 29·6	3·21	1 11·22	0 13·48
Thur.	25	18 14 20·85	11·107	23 25 12·5	4·40	1 11·21	0 16·52
Frid.	26	18 18 47·42	11·102	23 23 26·9	5·57	1 11·20	0 46·45
Sat.	27	18 23 13·87	11·097	23 21 13·3	6·75	1 11·18	1 16·27
Sun.	28	18 27 40·20	11·089	23 18 31·4	7·91	1 11·16	1 45·96
Mon.	29	18 32 6·34	11·081	23 15 21·5	9·08	1 11·13	2 15·46
Tues.	30	18 36 32·28	11·070	23 11 43·5	10·25	1 11·10	2 44·75
Wed.	31	18 40 57·96	11·057	23 7 37·5	11·40	1 11·06	3 13·79
Thur.	32	18 45 23·34		S. 23 3 3·8		1 11·02	3 42·53

* Time of the Semidiameter passing may be found by subtracting 0·19 from the Sidereal

AT MEAN NOON.

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Apparent Time.	Sidereal Time.
		Right Ascension.	Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Mon.	1	16 28 38.72	S. 21 48 2.0	16 14.9	10 48.17	16 39 26.89
Tues.	2	16 32 58.22	21 57 14.1	16 15.1	10 25.23	16 43 23.45
Wed.	3	16 37 18.34	22 6 0.8	16 15.2	10 1.67	16 47 20.01
Thur.	4	16 41 39.06	22 14 21.9	16 15.4	9 37.51	16 51 16.57
Frid.	5	16 46 0.34	22 22 17.0	16 15.5	9 12.78	16 55 13.12
Sat.	6	16 50 22.16	22 29 45.9	16 15.6	8 47.52	16 59 9.68
Sun.	7	16 54 44.48	22 36 48.4	16 15.8	8 21.76	17 3 6.24
Mon.	8	16 59 7.28	22 43 24.3	16 15.9	7 55.52	17 7 2.80
Tues.	9	17 3 30.53	22 49 33.2	16 16.0	7 28.83	17 10 59.36
Wed.	10	17 7 54.22	22 55 15.2	16 16.1	7 1.69	17 14 55.91
Thur.	11	17 12 18.30	23 0 29.9	16 16.2	6 34.17	17 18 52.47
Frid.	12	17 16 42.74	23 5 17.3	16 16.3	6 6.29	17 22 49.03
Sat.	13	17 21 7.53	23 9 37.1	16 16.4	5 38.06	17 26 45.59
Sun.	14	17 25 32.61	23 13 29.2	16 16.5	5 9.54	17 30 42.15
Mon.	15	17 29 58.00	23 16 53.6	16 16.6	4 40.71	17 34 38.71
Tues.	16	17 34 23.62	23 19 50.1	16 16.7	4 11.64	17 38 35.26
Wed.	17	17 38 49.48	23 22 18.6	16 16.8	3 42.34	17 42 31.82
Thur.	18	17 43 15.53	23 24 19.1	16 16.8	3 12.85	17 46 28.38
Frid.	19	17 47 41.75	23 25 51.4	16 16.9	2 43.19	17 50 24.94
Sat.	20	17 52 8.11	23 26 55.5	16 17.0	2 13.39	17 54 21.50
Sun.	21	17 56 34.57	23 27 31.5	16 17.0	1 43.48	17 58 18.05
Mon.	22	18 1 1.10	23 27 39.2	16 17.0	1 13.51	18 2 14.61
Tues.	23	18 5 27.68	23 27 18.5	16 17.1	0 43.49	18 6 11.17
Wed.	24	18 9 54.25	23 26 29.6	16 17.1	0 13.48	18 10 7.73
Thur.	25	18 14 20.80	23 25 12.5	16 17.2	0 16.51	18 14 4.29
Frid.	26	18 18 47.28	23 23 27.0	16 17.2	0 46.43	18 18 0.85
Sat.	27	18 23 13.64	23 21 13.4	16 17.2	1 16.24	18 21 57.40
Sun.	28	18 27 39.88	23 18 31.6	16 17.2	1 45.92	18 25 53.96
Mon.	29	18 32 5.93	23 15 21.8	16 17.2	2 15.41	18 29 50.52
Tues.	30	18 36 31.77	23 11 43.9	16 17.2	2 44.69	18 33 47.08
Wed.	31	18 40 57.37	23 7 38.1	16 17.2	3 13.73	18 37 43.64
Thur.	32	18 45 22.66	S. 23 3 4.5	16 17.2	3 42.46	18 41 40.20

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Days of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	248 52 35.5	N. 0° 01'	9.9937098	16 21.2	16 15.9	60 0.9	59 41.4
2	249 53 29.7	S. 0° 10'	9.9936446	16 9.9	16 3.2	59 19.1	58 54.8
3	250 54 24.8	0° 21'	9.9935807	15 56.1	15 48.7	58 28.7	58 1.9
4	251 55 21.0	0° 32'	9.9935183	15 41.3	15 33.9	57 34.2	57 7.1
5	252 56 17.9	0° 40'	9.9934574	15 26.7	15 19.9	56 40.8	56 15.8
6	253 57 15.6	0° 47'	9.9933983	15 13.5	15 7.6	55 52.3	55 30.8
7	254 58 13.9	0° 51'	9.9933409	15 2.4	14 57.8	55 11.6	54 54.7
8	255 59 12.9	0° 52'	9.9932853	14 53.9	14 50.7	54 40.2	54 28.5
9	257 0 12.4	0° 50'	9.9932319	14 48.1	14 46.3	54 19.3	54 12.6
10	258 1 12.7	0° 46'	9.9931806	14 45.1	14 44.6	54 8.2	54 6.3
11	259 2 13.5	0° 39'	9.9931316	14 44.8	14 45.5	54 6.9	54 9.4
12	260 3 14.8	0° 30'	9.9930851	14 46.7	14 48.3	54 13.8	54 19.9
13	261 4 16.7	0° 19'	9.9930411	14 50.5	14 53.0	54 27.8	54 36.9
14	262 5 19.0	S. 0° 06'	9.9929997	14 55.8	14 58.9	54 47.2	54 58.8
15	263 6 22.1	N. 0° 07'	9.9929611	15 2.3	15 5.9	55 11.3	55 24.4
16	264 7 25.6	0° 19'	9.9929251	15 9.6	15 13.4	55 37.9	55 51.9
17	265 8 29.8	0° 31'	9.9928918	15 17.3	15 21.2	56 6.2	56 20.7
18	266 9 34.7	0° 41'	9.9928613	15 25.2	15 29.2	56 35.3	56 49.9
19	267 10 40.2	0° 50'	9.9928334	15 33.2	15 37.1	57 4.4	57 18.7
20	268 11 46.4	0° 57'	9.9928082	15 41.0	15 44.8	57 33.1	57 47.2
21	269 12 53.3	0° 59'	9.9927855	15 48.6	15 52.4	58 1.2	58 14.9
22	270 14 0.8	0° 60'	9.9927652	15 56.0	15 59.5	58 28.3	58 41.2
23	271 15 9.0	0° 59'	9.9927473	16 3.0	16 6.2	58 53.9	59 5.7
24	272 16 17.6	0° 53'	9.9927315	16 9.2	16 11.9	59 16.7	59 26.7
25	273 17 27.0	0° 46'	9.9927178	16 14.3	16 16.2	59 35.4	59 42.3
26	274 18 36.8	0° 37'	9.9927062	16 17.4	16 18.1	59 46.8	59 49.2
27	275 19 46.8	0° 25'	9.9926965	16 18.0	16 17.2	59 49.1	59 46.2
28	276 20 57.4	0° 13'	9.9926885	16 15.7	16 13.2	59 40.4	59 31.5
29	277 22 8.1	N. 0° 01'	9.9926824	16 10.0	16 6.1	59 19.7	59 5.2
30	278 23 19.0	S. 0° 10'	9.9926779	16 1.4	15 56.2	58 48.2	58 29.1
31	279 24 30.1	0° 21'	9.9926751	15 50.6	15 44.5	58 8.3	57 46.2
32	280 25 41.3	S. 0° 28'	9.9926739	15 38.3	15 31.9	57 23.3	56 59.9

MEAN TIME.

THE MOON'S

Days of the Week.	Days of the Month.	Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
Mon.	1	258° 39' 28" 8	265° 53' 50" 1	S. 0° 6' 43" 4	S. 0° 46' 44" 2	0·7	0 32·5
Tues.	2	273° 2' 56" 7	280° 6' 17" 5	1 25 32·1	2 2 29·9	1·7	1 33·9
Wed.	3	287° 3' 29" 8	293° 54' 20" 8	2 37 5·7	3 8 53·4	2·7	2 34·2
Thur.	4	300° 38' 45" 9	307° 16' 49" 7	3 37 32·4	4 2 47·3	3·7	3 31·4
Frid.	5	313° 48' 43" 9	320° 14' 45" 4	4 24 28·0	4 42 27·6	4·7	4 24·4
Sat.	6	326° 35' 18" 3	332° 50' 48" 8	4 56 43·4	5 7 14·8	5·7	5 13·1
Sun.	7	339° 1' 48" 0	345° 8' 47" 4	5 14 3·8	5 17 14·0	6·7	5 58·0
Mon.	8	351° 12' 22" 0	357° 13' 6" 1	5 16 49·7	5 12 57·2	7·7	6 40·2
Tues.	9	3 11 34·4	9 8 22·1	5 5 42·3	4 55 12·6	8·7	7 20·8
Wed.	10	15 4 3·1	20 59 9·7	4 41 35·5	4 24 59·7	9·7	8 0·8
Thur.	11	26 54 13·3	32 49 43·3	4 5 34·4	3 43 30·0	10·7	8 41·3
Frid.	12	38 46 6·6	44 43 49·2	3 18 58·0	2 52 10·6	11·7	9 23·2
Sat.	13	50 43 13·0	56 44 39·0	2 23 22·2	1 52 48·3	12·7	10 7·4
Sun.	14	62 48 24·8	68 54 46·0	1 20 46·6	S. 0 47 35·9	13·7	10 54·5
Mon.	15	75 3 55·2	81 16 2·7	S. 0 13 37·0	N. 0 20 47·6	14·7	11 44·7
Tues.	16	87 31 16·3	93 49 42·5	N. 0 55 13·6	1 29 16·3	15·7	12 37·7
Wed.	17	100 11 25·3	106 36 27·0	2 2 29·2	2 34 26·1	16·7	13 32·3
Thur.	18	113 4 49·7	119 36 33·0	3 4 40·3	3 32 45·0	17·7	14 27·3
Frid.	19	126 11 36·4	132 49 59·2	3 58 14·7	4 20 44·7	18·7	15 21·3
Sat.	20	139 31 39·3	146 16 35·4	4 39 52·8	4 55 18·0	19·7	16 13·5
Sun.	21	153 4 44·0	159 56 2·0	5 6 42·1	5 13 50·1	20·7	17 3·9
Mon.	22	166 50 24·8	173 47 47·3	5 16 30·2	5 14 34·3	21·7	17 52·9
Tues.	23	180 48 2·4	187 51 0·7	5 7 57·8	4 56 41·4	22·7	18 41·7
Wed.	24	194 56 31·4	202 4 20·2	4 40 50·5	4 20 34·8	23·7	19 31·2
Thur.	25	209 14 9·9	216 25 39·4	3 56 9·6	3 27 55·8	24·7	20 22·6
Frid.	26	223 38 24·6	230 51 57·0	2 56 19·1	2 21 50·1	25·7	21 16·9
Sat.	27	238 5 43·8	245 19 10·6	1 45 3·9	N. 1 6 38·9	26·7	22 14·4
Sun.	28	252 31 40·3	259 42 33·8	N. 0 27 16·2	S. 0 12 22·7	27·7	23 14·5
Mon.	29	266 51 10·9	273 56 54·3	S. 0 51 36·0	1 29 43·6	28·7	0 6
Tues.	30	280 59 7·1	287 57 16·7	2 6 7·8	2 40 15·9	0·2	0 15·4
Wed.	31	294 50 54·9	301 39 38·9	3 11 39·2	3 39 53·7	1·2	1 14·8
Thur.	32	308 23 12·5	315 1 24·0	S. 4 4 41·4	S. 4 25 48·8	2·2	2 10·9

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
MONDAY 1.				WEDNESDAY 3.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	17 10 37.28	S. 23 5 17.3	63.69	0	19 15 26.29	S. 24 58 6.9
1	17 13 13.78	23 11 39.4	62.02	1	19 17 58.55	24 56 20.6
2	17 15 50.39	23 17 51.6	60.35	2	19 20 30.52	24 54 24.8
3	17 18 27.10	23 23 53.7	58.66	3	19 23 2.21	24 52 19.6
4	17 21 3.90	23 29 45.7	56.98	4	19 25 33.59	24 50 5.0
5	17 23 40.78	23 35 27.5	55.29	5	19 28 4.68	24 47 41.1
6	17 26 17.73	23 40 59.2	53.59	6	19 30 35.46	24 45 7.9
7	17 28 54.75	23 46 20.8	51.88	7	19 33 5.92	24 42 25.6
8	17 31 31.84	23 51 32.0	50.17	8	19 35 36.07	24 39 34.1
9	17 34 8.97	23 56 33.1	48.46	9	19 38 5.88	24 36 33.6
10	17 36 46.14	24 1 23.8	46.74	10	19 40 35.37	24 33 24.0
11	17 39 23.35	24 6 4.2	45.02	11	19 43 4.52	24 30 5.6
12	17 42 0.59	24 10 34.3	43.28	12	19 45 33.33	24 26 38.3
13	17 44 37.84	24 14 54.0	41.55	13	19 48 1.79	24 23 2.2
14	17 47 15.10	24 19 3.3	39.82	14	19 50 29.90	24 19 17.4
15	17 49 52.36	24 23 2.3	38.09	15	19 52 57.65	24 15 24.0
16	17 52 29.61	24 26 50.8	36.36	16	19 55 25.05	24 11 22.0
17	17 55 6.84	24 30 29.0	34.62	17	19 57 52.08	24 7 11.6
18	17 57 44.05	24 33 56.7	32.89	18	20 0 18.74	24 2 52.7
19	18 0 21.23	24 37 14.0	31.15	19	20 2 45.03	23 58 25.5
20	18 2 58.36	24 40 20.9	29.42	20	20 5 10.94	23 53 50.0
21	18 5 35.44	24 43 17.4	27.68	21	20 7 36.47	23 49 6.3
22	18 8 12.46	24 46 3.5	25.95	22	20 10 1.62	23 44 14.6
23	18 10 49.41	S. 24 48 39.2	24.21	23	20 12 26.38	S. 23 39 14.8
TUESDAY 2.				THURSDAY 4.		
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]
0	18 13 26.29	S. 24 51 4.5	22.48	0	20 14 50.76	S. 23 34 7.0
1	18 16 3.08	24 53 19.3	20.75	1	20 17 14.74	23 28 51.4
2	18 18 39.78	24 55 23.9	19.02	2	20 19 38.33	23 23 28.0
3	18 21 16.38	24 57 18.0	17.30	3	20 22 1.51	23 17 56.9
4	18 23 52.86	24 59 1.8	15.58	4	20 24 24.30	23 12 18.2
5	18 26 29.22	25 0 35.3	13.86	5	20 26 46.68	23 6 31.9
6	18 29 5.46	25 1 58.4	12.14	6	20 29 8.66	23 0 38.2
7	18 31 41.55	25 3 11.3	10.43	7	20 31 30.24	22 54 37.0
8	18 34 17.50	25 4 13.9	8.73	8	20 33 51.40	22 48 28.6
9	18 36 53.30	25 5 6.3	7.03	9	20 36 12.16	22 42 12.9
10	18 39 28.94	25 5 48.4	5.33	10	20 38 32.50	22 35 50.1
11	18 42 4.40	25 6 20.4	3.64	11	20 40 52.43	22 29 20.2
12	18 44 39.69	25 6 42.2	1.95	12	20 43 11.95	22 22 43.3
13	18 47 14.79	25 6 53.9	0.27	13	20 45 31.05	22 15 59.5
14	18 49 49.69	25 6 55.5	1.40	14	20 47 49.74	22 9 9.0
15	18 52 24.39	25 6 47.1	3.07	15	20 50 8.01	22 2 11.7
16	18 54 58.88	25 6 28.7	4.73	16	20 52 25.86	21 55 7.7
17	18 57 33.15	25 6 0.3	6.38	17	20 54 43.29	21 47 57.1
18	19 0 7.19	25 5 22.0	8.02	18	20 57 0.30	21 40 40.1
19	19 2 41.00	25 4 33.9	9.66	19	20 59 16.90	21 33 16.6
20	19 5 14.57	25 3 35.9	11.29	20	21 1 33.07	21 25 46.8
21	19 7 47.89	25 2 28.2	12.91	21	21 3 48.83	21 18 10.7
22	19 10 20.95	25 1 10.7	14.52	22	21 6 4.17	21 10 28.5
23	19 12 53.76	24 59 43.6	16.12	23	21 8 19.09	21 2 40.2
24	19 15 26.29	S. 24 58 6.9		24	21 10 33.60	S. 20 54 45.9

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 5.				SUNDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 10 33.60	S. 20 54 45.9	80.03	0	22 50 34.80	S. 13 2 12.3	113.20
1	21 12 47.69	20 46 45.7	81.01	1	22 52 31.49	12 50 53.1	113.63
2	21 15 1.36	20 38 39.6	81.97	2	22 54 27.89	12 39 31.4	114.05
3	21 17 14.61	20 30 27.9	82.91	3	22 56 24.02	12 28 7.0	114.47
4	21 19 27.45	20 22 10.4	83.85	4	22 58 19.88	12 16 40.3	114.87
5	21 21 39.88	20 13 47.3	84.77	5	23 0 15.46	12 5 11.0	115.27
6	21 23 51.90	20 5 18.7	85.67	6	23 2 10.78	11 53 39.4	115.65
7	21 26 3.51	19 56 44.7	86.57	7	23 4 5.84	11 42 5.5	116.03
8	21 28 14.70	19 48 5.3	87.45	8	23 6 0.64	11 30 29.3	116.40
9	21 30 25.50	19 39 20.5	88.32	9	23 7 55.19	11 18 50.9	116.77
10	21 32 35.88	19 30 30.6	89.18	10	23 9 49.49	11 7 10.3	117.12
11	21 34 45.87	19 21 35.5	90.02	11	23 11 43.54	10 55 27.5	117.47
12	21 36 55.45	19 12 35.4	90.85	12	23 13 37.35	10 43 42.7	117.81
13	21 39 4.63	19 3 30.3	91.67	13	23 15 30.92	10 31 55.9	118.14
14	21 41 13.42	18 54 20.3	92.48	14	23 17 24.27	10 20 7.1	118.46
15	21 43 21.81	18 45 5.4	93.27	15	23 19 17.39	10 8 16.3	118.77
16	21 45 29.80	18 35 45.7	94.06	16	23 21 10.28	9 56 23.7	119.08
17	21 47 37.41	18 26 21.4	94.83	17	23 23 2.95	9 44 29.2	119.37
18	21 49 44.62	18 16 52.4	95.59	18	23 24 55.40	9 32 33.0	119.66
19	21 51 51.45	18 7 18.9	96.33	19	23 26 47.65	9 20 35.0	119.95
20	21 53 57.90	17 57 40.9	97.07	20	23 28 39.69	9 8 35.3	120.22
21	21 56 3.97	17 47 58.5	97.79	21	23 30 31.52	8 56 34.0	120.49
22	21 58 9.65	17 38 11.8	98.50	22	23 32 23.15	8 44 31.1	120.75
23	22 0 14.96	S. 17 28 20.8	99.20	23	23 34 14.59	S. 8 32 26.6	121.00
SATURDAY 6.				MONDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	22 2 19.90	S. 17 18 25.6	99.89	0	23 36 5.83	S. 8 20 20.6	121.23
1	22 4 24.47	17 8 26.3	100.56	1	23 37 56.89	8 8 13.2	121.47
2	22 6 28.66	16 58 22.9	101.23	2	23 39 47.76	7 56 4.4	121.70
3	22 8 32.50	16 48 15.5	101.88	3	23 41 38.46	7 43 54.2	121.92
4	22 10 35.97	16 38 4.2	102.53	4	23 43 28.99	7 31 42.7	122.14
5	22 12 39.08	16 27 49.0	103.16	5	23 45 19.34	7 19 29.9	122.35
6	22 14 41.84	16 17 30.1	103.78	6	23 47 9.53	7 7 15.8	122.55
7	22 16 44.24	16 7 7.4	104.39	7	23 48 59.56	6 55 0.5	122.74
8	22 18 46.30	15 56 41.0	104.99	8	23 50 49.43	6 42 44.1	122.93
9	22 20 48.02	15 46 11.1	105.58	9	23 52 39.15	6 30 26.5	123.11
10	22 22 49.39	15 35 37.6	106.16	10	23 54 28.72	6 18 7.8	123.28
11	22 24 50.43	15 25 0.7	106.73	11	23 56 18.14	6 5 48.1	123.45
12	22 26 51.13	15 14 20.3	107.28	12	23 58 7.43	5 53 27.4	123.62
13	22 28 51.50	15 3 36.6	107.83	13	23 59 56.58	5 41 5.7	123.77
14	22 30 51.55	14 52 49.6	108.36	14	0 1 45.61	5 28 43.1	123.92
15	22 32 51.27	14 41 59.4	108.90	15	0 3 34.51	5 16 19.6	124.06
16	22 34 50.67	14 31 6.0	109.41	16	0 5 23.28	5 3 55.3	124.19
17	22 36 49.75	14 20 9.6	109.92	17	0 7 11.94	4 51 30.2	124.32
18	22 38 48.53	14 9 10.0	110.42	18	0 9 0.48	4 39 4.3	124.44
19	22 40 46.99	13 58 7.5	110.90	19	0 10 48.92	4 26 37.7	124.55
20	22 42 45.15	13 47 2.1	111.38	20	0 12 37.24	4 14 10.4	124.66
21	22 44 43.00	13 35 53.8	111.85	21	0 14 25.47	4 1 42.4	124.76
22	22 46 40.56	13 24 42.7	112.31	22	0 16 13.60	3 49 13.9	124.85
23	22 48 37.83	13 13 28.9	112.76	23	0 18 1.63	3 36 44.8	124.94
24	22 50 34.80	S. 13 2 12.3		24	0 19 49.58	S. 3 24 15.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 9.				THURSDAY 11.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	0 19 49.58	S. 3 24 15.2	125.01	0	1 45 47.08	N. 6 33 30.6	121.34
1	0 21 37.44	3 11 45.1	125.09	1	1 47 35.67	6 45 40.0	121.34
2	0 23 25.22	2 59 14.6	125.16	2	1 49 24.37	6 57 48.1	121.31
3	0 25 12.92	2 46 43.6	125.22	3	1 51 13.18	7 9 54.8	120.37
4	0 27 0.55	2 34 12.3	125.27	4	1 53 2.11	7 22 0.0	120.42
5	0 28 48.12	2 21 40.7	125.33	5	1 54 51.17	7 34 3.7	120.36
6	0 30 35.62	2 9 8.7	125.37	6	1 56 40.35	7 46 5.9	120.30
7	0 32 23.05	1 56 36.5	125.41	7	1 58 29.66	7 58 6.5	119.33
8	0 34 10.44	1 44 4.1	125.44	8	2 0 19.10	8 10 5.4	119.35
9	0 35 57.77	1 31 31.4	125.47	9	2 2 8.68	8 22 2.7	119.37
10	0 37 45.05	1 18 58.6	125.49	10	2 3 58.40	8 33 58.3	118.38
11	0 39 32.29	1 6 25.7	125.50	11	2 5 48.26	8 45 52.2	118.38
12	0 41 19.50	0 53 52.7	125.52	12	2 7 38.28	8 57 44.2	118.37
13	0 43 6.67	0 41 19.6	125.52	13	2 9 28.44	9 9 34.4	118.05
14	0 44 53.81	0 28 46.5	125.51	14	2 11 18.76	9 21 22.8	117.74
15	0 46 40.92	0 16 13.4	125.50	15	2 13 9.23	9 33 9.2	117.43
16	0 48 28.01	S. 0 3 40.4	125.48	16	2 14 59.87	9 44 53.6	117.07
17	0 50 15.08	N. 0 8 52.5	125.46	17	2 16 50.67	9 56 36.1	116.73
18	0 52 2.14	0 21 25.2	125.43	18	2 18 41.64	10 8 16.4	116.38
19	0 53 49.18	0 33 57.8	125.39	19	2 20 32.78	10 19 54.7	116.02
20	0 55 36.22	0 46 30.1	125.35	20	2 22 24.09	10 31 30.9	115.66
21	0 57 23.26	0 59 2.2	125.29	21	2 24 15.59	10 43 4.8	115.29
22	0 59 10.30	1 11 34.0	125.24	22	2 26 7.26	10 54 36.5	114.91
23	1 0 57.35	N. 1 24 5.4	125.17	23	2 27 59.13	N. 11 6 6.0	114.52
WEDNESDAY 10.				FRIDAY 12.			
0	1 2 44.40	N. 1 36 36.4	125.09	0	2 29 51.18	N. 11 17 33.1	114.13
1	1 4 31.47	1 49 7.0	125.01	1	2 31 43.42	11 28 57.8	113.72
2	1 6 18.56	2 1 37.1	124.93	2	2 33 35.86	11 40 20.2	113.31
3	1 8 5.67	2 14 6.7	124.84	3	2 35 28.50	11 51 40.0	112.89
4	1 9 52.80	2 26 35.7	124.75	4	2 37 21.33	12 2 57.4	112.46
5	1 11 39.97	2 39 4.2	124.65	5	2 39 14.38	12 14 12.2	112.03
6	1 13 27.17	2 51 32.1	124.54	6	2 41 7.62	12 25 24.3	111.59
7	1 15 14.41	3 3 59.4	124.43	7	2 43 1.08	12 36 33.8	111.13
8	1 17 1.69	3 16 26.0	124.31	8	2 44 54.76	12 47 40.6	110.67
9	1 18 49.02	3 28 51.9	124.19	9	2 46 48.64	12 58 44.7	110.20
10	1 20 36.39	3 41 17.0	124.06	10	2 48 42.75	13 9 45.9	109.73
11	1 22 23.82	3 53 41.4	123.92	11	2 50 37.08	13 20 44.3	109.24
12	1 24 11.31	4 6 4.9	123.79	12	2 52 31.64	13 31 39.7	108.75
13	1 25 58.86	4 18 27.6	123.64	13	2 54 26.42	13 42 32.2	108.24
14	1 27 46.48	4 30 49.5	123.49	14	2 56 21.43	13 53 21.7	107.73
15	1 29 34.16	4 43 10.4	123.33	15	2 58 16.68	14 4 8.1	107.21
16	1 31 21.92	4 55 30.4	123.16	16	3 0 12.16	14 14 51.4	106.69
17	1 33 9.75	5 7 49.4	122.99	17	3 2 7.88	14 25 31.5	106.15
18	1 34 57.67	5 20 7.3	122.81	18	3 4 3.84	14 36 8.4	105.60
19	1 36 45.67	5 32 24.1	122.62	19	3 6 0.05	14 46 42.0	105.05
20	1 38 33.76	5 44 39.8	122.42	20	3 7 56.50	14 57 12.3	104.49
21	1 40 21.94	5 56 54.4	122.22	21	3 9 53.21	15 7 39.2	103.92
22	1 42 10.22	6 9 7.7	122.01	22	3 11 50.16	15 18 2.7	103.34
23	1 43 58.60	6 21 19.8	121.80	23	3 13 47.37	15 28 22.7	102.75
24	1 45 47.08	N. 6 33 30.6		24	3 15 44.83	N. 15 38 39.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 13.				MONDAY 15.			
0	3 15 44.83	N.15 38 39.2	102.15	0	4 55 15.53	N.22 23 54.0	62.12
1	3 17 42.55	15 48 52.1	101.54	1	4 57 27.10	22 30 6.7	61.04
2	3 19 40.54	15 59 1.4	100.93	2	4 59 38.95	22 36 13.0	59.96
3	3 21 38.79	16 9 6.9	100.30	3	5 1 51.08	22 42 12.7	58.87
4	3 23 37.30	16 19 8.7	99.66	4	5 4 3.49	22 48 5.9	57.76
5	3 25 36.08	16 29 6.7	99.02	5	5 6 16.18	22 53 52.5	56.65
6	3 27 35.13	16 39 0.8	98.37	6	5 8 29.15	22 59 32.4	55.53
7	3 29 34.46	16 48 51.0	97.70	7	5 10 42.39	23 5 5.6	54.40
8	3 31 34.05	16 58 37.2	97.03	8	5 12 55.91	23 10 32.0	53.26
9	3 33 33.92	17 8 19.4	96.35	9	5 15 9.70	23 15 51.5	52.11
10	3 35 34.07	17 17 57.5	95.66	10	5 17 23.75	23 21 4.2	50.96
11	3 37 34.50	17 27 31.4	94.95	11	5 19 38.07	23 26 10.0	49.79
12	3 39 35.21	17 37 1.1	94.24	12	5 21 52.65	23 31 8.7	48.62
13	3 41 36.20	17 46 26.6	93.52	13	5 24 7.49	23 36 0.4	47.43
14	3 43 37.47	17 55 47.7	92.79	14	5 26 22.59	23 40 45.0	46.24
15	3 45 39.03	18 5 4.4	92.05	15	5 28 37.94	23 45 22.4	45.04
16	3 47 40.87	18 14 16.7	91.30	16	5 30 53.54	23 49 52.7	43.83
17	3 49 43.01	18 23 24.5	90.54	17	5 33 9.39	23 54 15.7	42.62
18	3 51 45.43	18 32 27.8	89.77	18	5 35 25.49	23 58 31.4	41.39
19	3 53 48.14	18 41 26.4	88.99	19	5 37 41.83	24 2 39.7	40.16
20	3 55 51.14	18 50 20.4	88.21	20	5 39 58.40	24 6 40.7	38.92
21	3 57 54.44	18 59 9.6	87.41	21	5 42 15.21	24 10 34.2	37.67
22	3 59 58.03	19 7 54.1	86.60	22	5 44 32.25	24 14 20.3	36.42
23	4 2 1.91	N.19 16 33.7	85.78	23	5 46 49.51	N.24 17 58.8	35.15
SUNDAY 14.				TUESDAY 16.			
0	4 4 6.09	N.19 25 8.3	84.95	0	5 49 7.00	N.24 21 29.7	33.89
1	4 6 10.57	19 33 38.1	84.12	1	5 51 24.71	24 24 53.0	32.61
2	4 8 15.34	19 42 2.8	83.27	2	5 53 42.63	24 28 8.7	31.33
3	4 10 20.41	19 50 22.4	82.41	3	5 56 0.77	24 31 16.6	30.03
4	4 12 25.77	19 58 36.8	81.54	4	5 58 19.11	24 34 16.8	28.74
5	4 14 31.44	20 6 46.1	80.67	5	6 0 37.65	24 37 9.2	27.43
6	4 16 37.40	20 14 50.1	79.78	6	6 2 56.40	24 39 53.8	26.12
7	4 18 43.66	20 22 48.8	78.88	7	6 5 15.33	24 42 30.5	24.80
8	4 20 50.22	20 30 42.1	77.97	8	6 7 34.46	24 44 59.3	23.48
9	4 22 57.08	20 38 29.9	77.06	9	6 9 53.77	24 47 20.2	22.15
10	4 25 4.24	20 46 12.3	76.13	10	6 12 13.26	24 49 33.1	20.81
11	4 27 11.69	20 53 49.0	75.19	11	6 14 32.92	24 51 37.9	19.47
12	4 29 19.44	21 1 20.2	74.25	12	6 16 52.76	24 53 34.8	18.12
13	4 31 27.49	21 8 45.7	73.29	13	6 19 12.76	24 55 23.5	16.77
14	4 33 35.84	21 16 5.4	72.32	14	6 21 32.93	24 57 4.1	15.41
15	4 35 44.49	21 23 19.4	71.35	15	6 23 53.24	24 58 36.5	14.05
16	4 37 53.43	21 30 27.4	70.36	16	6 26 13.71	25 0 0.8	12.68
17	4 40 2.67	21 37 29.6	69.36	17	6 28 34.33	25 1 16.9	11.31
18	4 42 12.20	21 44 25.8	68.36	18	6 30 55.08	25 2 24.7	9.93
19	4 44 22.03	21 51 15.9	67.34	19	6 33 15.97	25 3 24.3	8.55
20	4 46 32.15	21 58 0.0	66.31	20	6 35 36.99	25 4 15.6	7.17
21	4 48 42.56	22 4 37.8	65.28	21	6 37 58.14	25 4 58.7	5.78
22	4 50 53.26	22 11 9.5	64.23	22	6 40 19.40	25 5 33.3	4.39
23	4 53 4.25	22 17 34.9	63.18	23	6 42 40.78	25 5 59.7	2.99
24	4 55 15.53	N.22 23 54.0		24	6 45 2.26	N.25 6 17.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 17.				FRIDAY 19.			
0	6 45 2 26	N.25 6 17 6	1 60	0	8 38 34 74	N.22 35 5 6	68 24
1	6 47 23 85	25 6 27 2	0 20	1	8 40 55 05	22 28 34 2	66 23
2	6 49 45 54	25 6 28 4	1 21	2	8 43 15 23	22 21 54 9	67 55
3	6 52 7 31	25 6 21 1	2 61	3	8 45 35 27	22 15 7 8	69 14
4	6 54 29 18	25 6 5 5	4 02	4	8 47 55 17	22 8 13 0	70 42
5	6 56 51 12	25 5 41 3	5 43	5	8 50 14 92	22 1 10 5	71 70
6	6 59 13 14	25 5 8 7	6 85	6	8 52 34 53	21 54 0 3	72 37
7	7 1 35 23	25 4 27 6	8 26	7	8 54 53 98	21 46 42 5	74 23
8	7 3 57 39	25 3 38 1	9 68	8	8 57 13 28	21 39 17 1	75 48
9	7 6 19 61	25 2 40 0	11 10	9	8 59 32 43	21 31 44 2	76 73
10	7 8 41 87	25 1 33 4	12 52	10	9 1 51 42	21 24 3 9	77 57
11	7 11 4 19	25 0 18 3	13 93	11	9 4 10 24	21 16 16 0	79 20
12	7 13 26 54	24 58 54 7	15 36	12	9 6 28 91	21 8 20 8	80 42
13	7 15 48 94	24 57 22 6	16 78	13	9 8 47 41	21 0 18 3	81 64
14	7 18 11 36	24 55 41 9	18 20	14	9 11 5 74	20 52 8 5	82 84
15	7 20 33 82	24 53 52 7	19 62	15	9 13 23 91	20 43 51 4	84 04
16	7 22 56 29	24 51 55 0	21 04	16	9 15 41 90	20 35 27 1	85 23
17	7 25 18 77	24 49 48 7	22 46	17	9 17 59 72	20 26 55 8	86 41
18	7 27 41 27	24 47 33 9	23 89	18	9 20 17 37	20 18 17 3	87 59
19	7 30 3 76	24 45 10 6	25 31	19	9 22 34 85	20 9 31 7	88 75
20	7 32 26 26	24 42 38 8	26 72	20	9 24 52 15	20 0 39 2	89 91
21	7 34 48 75	24 39 58 4	28 14	21	9 27 9 28	19 51 39 8	91 05
22	7 37 11 22	24 37 9 6	29 56	22	9 29 26 23	19 42 33 5	92 19
23	7 39 33 68	N.24 34 12 2	30 97	23	9 31 43 00	N.19 33 20 3	93 32
THURSDAY 18.				SATURDAY 20.			
0	7 41 56 11	N.24 31 6 4	32 39	0	9 33 59 59	N.19 24 0 4	94 44
1	7 44 18 51	24 27 52 1	33 80	1	9 36 16 00	19 14 33 8	95 55
2	7 46 40 88	24 24 29 3	35 21	2	9 38 32 23	19 5 0 5	96 65
3	7 49 3 21	24 20 58 0	36 61	3	9 40 48 28	18 55 20 6	97 74
4	7 51 25 50	24 17 18 3	38 02	4	9 43 4 15	18 45 34 2	98 82
5	7 53 47 73	24 13 30 2	39 42	5	9 45 19 84	18 35 41 2	99 89
6	7 56 9 92	24 9 33 7	40 82	6	9 47 35 34	18 25 41 9	100 95
7	7 58 32 04	24 5 28 8	42 21	7	9 49 50 67	18 15 36 2	102 00
8	8 0 54 10	24 1 15 5	43 60	8	9 52 5 81	18 5 24 2	103 04
9	8 3 16 09	23 56 53 9	44 99	9	9 54 20 77	17 55 5 9	104 08
10	8 5 38 01	23 52 24 0	46 37	10	9 56 35 55	17 44 41 5	105 10
11	8 7 59 85	23 47 45 8	47 75	11	9 58 50 14	17 34 10 9	106 11
12	8 10 21 60	23 42 59 2	49 13	12	10 1 4 56	17 23 34 2	107 11
13	8 12 43 27	23 38 4 5	50 50	13	10 3 18 79	17 12 51 6	108 10
14	8 15 4 85	23 33 1 5	51 87	14	10 5 32 85	17 2 3 0	109 08
15	8 17 26 33	23 27 50 3	53 23	15	10 7 46 73	16 51 8 5	110 05
16	8 19 47 71	23 22 30 9	54 58	16	10 10 0 42	16 40 8 2	111 01
17	8 22 8 99	23 17 3 4	55 94	17	10 12 13 94	16 29 2 2	111 95
18	8 24 30 17	23 11 27 8	57 28	18	10 14 27 29	16 17 50 5	112 89
19	8 26 51 23	23 5 44 1	58 62	19	10 16 40 46	16 6 33 1	113 82
20	8 29 12 17	22 59 52 4	59 96	20	10 18 53 46	15 55 10 2	114 74
21	8 31 33 00	22 53 52 6	61 29	21	10 21 6 28	15 43 41 8	115 64
22	8 33 53 71	22 47 44 9	62 61	22	10 23 18 94	15 32 7 9	116 54
23	8 36 14 29	22 41 29 2	63 93	23	10 25 31 42	15 20 28 7	117 42
24	8 38 34 74	N.22 35 5 6		24	10 27 43 74	N.15 8 44 2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 21.				TUESDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	10 27 43.74	N. 15 8 44.2	118.29	0	12 11 7.56	N. 4 23 20.1	146.71
1	10 29 55.89	14 56 54.4	119.16	1	12 13 15.08	4 8 39.8	147.01
2	10 32 7.88	14 44 59.5	120.01	2	12 15 22.60	3 53 57.7	147.30
3	10 34 19.71	14 32 59.5	120.85	3	12 17 30.11	3 39 14.0	147.57
4	10 36 31.38	14 20 54.4	121.68	4	12 19 37.63	3 24 28.5	147.83
5	10 38 42.89	14 8 44.3	122.49	5	12 21 45.15	3 9 41.6	148.08
6	10 40 54.24	13 56 29.4	123.30	6	12 23 52.69	2 54 53.1	148.31
7	10 43 5.44	13 44 9.6	124.10	7	12 26 0.24	2 40 3.2	148.53
8	10 45 16.48	13 31 45.0	124.88	8	12 28 7.82	2 25 12.0	148.74
9	10 47 27.38	13 19 15.7	125.65	9	12 30 15.42	2 10 19.6	148.94
10	10 49 38.13	13 6 41.8	126.42	10	12 32 23.05	1 55 26.0	149.12
11	10 51 48.73	12 54 3.3	127.17	11	12 34 30.71	1 40 31.3	149.29
12	10 53 59.19	12 41 20.3	127.91	12	12 36 38.41	1 25 35.5	149.44
13	10 56 9.51	12 28 32.9	128.63	13	12 38 46.16	1 10 38.9	149.59
14	10 58 19.70	12 15 41.1	129.35	14	12 40 53.95	0 55 41.3	149.72
15	11 0 29.75	12 2 45.0	130.05	15	12 43 1.80	0 40 43.0	149.83
16	11 2 39.66	11 49 44.6	130.75	16	12 45 9.70	0 25 44.0	149.94
17	11 4 49.46	11 36 40.1	131.43	17	12 47 17.67	N. 0 10 44.4	150.03
18	11 6 59.12	11 23 31.6	132.10	18	12 49 25.70	S. 0 4 15.8	150.11
19	11 9 8.66	11 10 19.0	132.76	19	12 51 33.80	0 19 16.4	150.17
20	11 11 18.08	10 57 2.4	133.41	20	12 53 41.98	0 34 17.4	150.22
21	11 13 27.39	10 43 42.0	134.04	21	12 55 50.23	0 49 18.8	150.26
22	11 15 36.58	10 30 17.7	134.67	22	12 57 58.58	1 4 20.3	150.28
23	11 17 45.67	N. 10 16 49.7	135.28	23	13 0 7.01	S. 1 19 22.0	150.29
MONDAY 22.				WEDNESDAY 24.			
0	11 19 54.64	N. 10 3 18.0	135.88	0	13 2 15.53	S. 1 34 23.8	150.29
1	11 22 3.51	9 49 42.8	136.47	1	13 4 24.15	1 49 25.5	150.27
2	11 24 12.29	9 36 4.0	137.05	2	13 6 32.88	2 4 27.1	150.24
3	11 26 20.97	9 22 21.7	137.61	3	13 8 41.71	2 19 28.5	150.19
4	11 28 29.55	9 8 36.0	138.17	4	13 10 50.65	2 34 29.7	150.13
5	11 30 38.05	8 54 47.0	138.71	5	13 12 59.71	2 49 30.5	150.06
6	11 32 46.46	8 40 54.8	139.24	6	13 15 8.89	3 4 30.9	149.97
7	11 34 54.79	8 26 59.3	139.76	7	13 17 18.20	3 19 30.7	149.87
8	11 37 3.04	8 13 0.8	140.26	8	13 19 27.64	3 34 29.9	149.76
9	11 39 11.22	7 58 59.2	140.76	9	13 21 37.21	3 49 28.5	149.62
10	11 41 19.32	7 44 54.7	141.24	10	13 23 46.92	4 4 26.2	149.48
11	11 43 27.36	7 30 47.2	141.71	11	13 25 56.77	4 19 23.1	149.32
12	11 45 35.34	7 16 37.0	142.17	12	13 28 6.77	4 34 19.0	149.15
13	11 47 43.26	7 2 23.9	142.62	13	13 30 16.92	4 49 13.7	148.96
14	11 49 51.12	6 48 8.2	143.05	14	13 32 27.23	5 4 7.9	148.76
15	11 51 58.93	6 33 49.9	143.47	15	13 34 37.70	5 19 0.2	148.54
16	11 54 6.69	6 19 29.1	143.88	16	13 36 48.34	5 33 51.4	148.31
17	11 56 14.40	6 5 5.8	144.28	17	13 38 59.14	5 48 41.3	148.06
18	11 58 22.08	5 50 40.1	144.67	18	13 41 10.12	6 3 29.6	147.80
19	12 0 29.73	5 36 12.1	145.04	19	13 43 21.28	6 18 16.4	147.52
20	12 2 37.34	5 21 41.9	145.40	20	13 45 32.62	6 33 1.5	147.23
21	12 4 44.93	5 7 9.5	145.75	21	13 47 44.14	6 47 44.9	146.92
22	12 6 52.49	4 52 35.0	146.08	22	13 49 55.86	7 2 26.4	146.60
23	12 9 0.03	4 37 58.5	146.41	23	13 52 7.77	7 17 6.0	146.26
24	12 11 7.56	N. 4 23 20.1		24	13 54 19.88	S. 7 31 43.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.
THURSDAY 25.				SATURDAY 27.		
	<i>h m s</i>	<i>S. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>S. ° ' "</i>
0	13 54 19.88	S. 7 31 43.5	145.90	0	15 44 59.65	S. 18 2 48.7
1	13 56 32.19	7 46 18.9	145.54	1	15 47 25.09	18 13 48.8
2	13 58 44.71	8 0 52.2	145.15	2	15 49 50.83	18 24 42.0
3	14 0 57.44	8 15 23.1	144.75	3	15 52 16.87	18 35 28.3
4	14 3 10.38	8 29 51.6	144.34	4	15 54 43.22	18 46 7.5
5	14 5 23.54	8 44 17.6	143.91	5	15 57 9.86	18 56 39.4
6	14 7 36.93	8 58 41.0	143.46	6	15 59 36.80	19 7 4.2
7	14 9 50.54	9 13 1.8	143.00	7	16 2 4.04	19 17 21.5
8	14 12 4.38	9 27 19.8	142.52	8	16 4 31.57	19 27 31.4
9	14 14 18.45	9 41 34.9	142.03	9	16 6 59.39	19 37 33.8
10	14 16 32.77	9 55 47.0	141.52	10	16 9 27.50	19 47 28.5
11	14 18 47.32	10 9 56.1	140.99	11	16 11 55.90	19 57 15.6
12	14 21 2.12	10 24 2.1	140.45	12	16 14 24.59	20 6 54.8
13	14 23 17.17	10 38 4.8	139.89	13	16 16 53.56	20 16 26.1
14	14 25 32.46	10 52 4.1	139.32	14	16 19 22.81	20 25 49.4
15	14 27 48.01	11 6 0.0	138.73	15	16 21 52.33	20 35 4.7
16	14 30 3.82	11 19 52.4	138.12	16	16 24 22.13	20 44 11.8
17	14 32 19.88	11 33 41.1	137.50	17	16 26 52.20	20 53 10.6
18	14 34 36.21	11 47 26.1	136.86	18	16 29 22.54	21 2 1.2
19	14 36 52.81	12 1 7.3	136.21	19	16 31 53.14	21 10 43.3
20	14 39 9.68	12 14 44.5	135.53	20	16 34 23.99	21 19 17.0
21	14 41 26.82	12 28 17.7	134.85	21	16 36 55.10	21 27 42.1
22	14 43 44.24	12 41 46.8	134.14	22	16 39 26.46	21 35 58.6
23	14 46 1.93	S. 12 55 11.7	133.42	23	16 41 58.06	S. 21 44 6.3
FRIDAY 26.				SUNDAY 28.		
	<i>h m s</i>	<i>S. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>S. ° ' "</i>
0	14 48 19.90	S. 13 8 32.2	132.69	0	16 44 29.91	S. 21 52 5.3
1	14 50 38.15	13 21 48.3	131.93	1	16 47 1.99	21 59 55.5
2	14 52 56.69	13 34 59.9	131.16	2	16 49 34.31	22 7 36.7
3	14 55 15.52	13 48 6.9	130.37	3	16 52 6.85	22 15 8.9
4	14 57 34.63	14 1 9.1	129.57	4	16 54 39.61	22 22 32.1
5	14 59 54.04	14 14 6.5	128.75	5	16 57 12.58	22 29 46.1
6	15 2 13.74	14 26 59.0	127.91	6	16 59 45.77	22 36 50.9
7	15 4 33.73	14 39 46.5	127.06	7	17 2 19.15	22 43 46.4
8	15 6 54.02	14 52 28.8	126.19	8	17 4 52.73	22 50 32.7
9	15 9 14.60	15 5 6.0	125.30	9	17 7 26.51	22 57 9.5
10	15 11 35.49	15 17 37.8	124.40	10	17 10 0.46	23 3 36.9
11	15 13 56.67	15 30 4.2	123.48	11	17 12 34.60	23 9 54.8
12	15 16 18.15	15 42 25.1	122.54	12	17 15 8.91	23 16 3.2
13	15 18 39.94	15 54 40.3	121.59	13	17 17 43.38	23 22 1.9
14	15 21 2.02	16 6 49.8	120.62	14	17 20 18.02	23 27 51.0
15	15 23 24.41	16 18 53.5	119.63	15	17 22 52.80	23 33 30.4
16	15 25 47.11	16 30 51.3	118.63	16	17 25 27.72	23 39 0.0
17	15 28 10.11	16 42 43.1	117.61	17	17 28 2.79	23 44 19.8
18	15 30 33.42	16 54 28.7	116.57	18	17 30 37.98	23 49 29.8
19	15 32 57.03	17 6 8.1	115.52	19	17 33 13.29	23 54 29.8
20	15 35 20.94	17 17 41.3	114.45	20	17 35 48.72	23 59 20.0
21	15 37 45.16	17 29 8.0	113.37	21	17 38 24.26	24 4 0.2
22	15 40 9.69	17 40 28.2	112.27	22	17 40 59.89	24 8 30.4
23	15 42 34.52	17 51 41.8	111.15	23	17 43 35.61	24 12 50.6
	15 44 59.65	S. 18 2 48.7		24	17 46 11.42	S. 24 17 0.7

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hours.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 29.				WEDNESDAY 31.		
h m s	° ' "	"		h m s	° ' "	"
7 46 11.42	S. 24 17 0.7	40.01	0	19 49 39.50	S. 24 19 10.1	39.09
7 48 47.30	24 21 0.7	38.32	1	19 52 8.99	24 15 15.5	40.57
7 51 23.25	24 24 50.6	36.63	2	19 54 38.16	24 11 12.1	42.03
7 53 59.26	24 28 30.4	34.94	3	19 57 7.01	24 6 59.9	43.49
7 56 35.32	24 32 0.0	33.24	4	19 59 35.53	24 2 38.9	44.93
7 59 11.42	24 35 19.5	31.54	5	20 2 3.71	23 58 9.4	46.36
8 1 47.55	24 38 28.7	29.84	6	20 4 31.56	23 53 31.2	47.78
8 4 23.70	24 41 27.7	28.13	7	20 6 59.07	23 48 44.5	49.18
8 6 59.87	24 44 16.5	26.43	8	20 9 26.22	23 43 49.4	50.58
8 9 36.05	24 46 55.1	24.72	9	20 11 53.03	23 38 46.0	51.96
8 12 12.22	24 49 23.4	23.01	10	20 14 19.47	23 33 34.2	53.32
8 14 48.38	24 51 41.5	21.30	11	20 16 45.56	23 28 14.3	54.68
8 17 24.53	24 53 49.3	19.59	12	20 19 11.27	23 22 46.2	56.02
8 20 0.64	24 55 46.8	17.88	13	20 21 36.62	23 17 10.1	57.35
8 22 36.72	24 57 34.1	16.17	14	20 24 1.59	23 11 26.0	58.66
8 25 12.74	24 59 11.1	14.46	15	20 26 26.19	23 5 34.0	59.96
8 27 48.72	25 0 37.9	12.76	16	20 28 50.40	22 59 34.2	61.25
8 30 24.62	25 1 54.4	11.05	17	20 31 14.24	22 53 26.8	62.52
8 33 0.46	25 3 0.8	9.35	18	20 33 37.68	22 47 11.6	63.78
8 35 36.21	25 3 56.8	7.65	19	20 36 0.74	22 40 48.9	65.03
8 38 11.87	25 4 42.7	5.95	20	20 38 23.41	22 34 18.8	66.26
8 40 47.43	25 5 18.4	4.26	21	20 40 45.69	22 27 41.2	67.48
8 43 22.88	25 5 44.0	2.57	22	20 43 7.56	22 20 56.3	68.68
8 45 58.22	S. 25 5 59.4	0.88	23	20 45 29.04	S. 22 14 4.2	69.87
TUESDAY 30.				THURSDAY, JAN. 1.		
8 48 33.43	S. 25 6 4.7	0.81	0	20 47 50.12	S. 22 7 5.0	
8 51 8.50	25 5 59.8	2.48				
8 53 43.44	25 5 44.9	4.16				
8 56 18.22	25 5 20.0	5.82				
8 58 52.83	25 4 45.1	7.49				
9 1 27.29	25 4 0.1	9.14				
9 4 1.56	25 3 5.3	10.79				
9 6 35.65	25 2 0.6	12.43				
9 9 9.54	25 0 45.9	14.07				
9 11 43.24	24 59 21.5	15.70				
9 14 16.73	24 57 47.3	17.32				
9 16 50.00	24 56 3.4	18.94				
9 19 23.05	24 54 9.8	20.55				
9 21 55.87	24 52 6.5	22.14				
9 24 28.44	24 49 53.6	23.73				
9 27 0.78	24 47 31.3	25.31				
9 29 32.85	24 44 59.4	26.88				
9 32 4.67	24 42 18.1	28.44				
9 34 36.21	24 39 27.4	30.00				
9 37 7.49	24 36 27.5	31.54				
9 39 38.48	24 33 18.2	33.07				
9 42 9.18	24 29 59.8	34.59				
9 44 39.59	24 26 32.3	36.10				
9 47 9.70	24 22 55.7	37.60				
9 49 39.50	S. 24 19 10.1					

PHASES OF THE MOON.

	d h m
☾ First Quarter ..	7 12 42.9
○ Full Moon.	15 16 55.0
☾ Last Quarter. ...	23 0 49.9
● New Moon.	29 19 12.7

	d h
☾ Apogee	10 15
☾ Perigee	26 18

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.	Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .	
2	SUN W.	23 11 56	2590	24 51 4	2607	26 29 49	2624	28 8	
	Fomalhaut E.	60 13 51	2504	58 32 43	2529	56 52 10	2555	55 12	
	α Pegasi E.	79 18 11	2703	77 41 35	2725	76 5 29	2747	74 29	
3	SUN W.	36 14 0	2734	37 49 55	2753	39 25 24	2772	41 0	
	Venus W.	- - -	-	- - -	-	- - -	-	- - -	
	Fomalhaut E.	47 2 33	2745	45 26 53	2784	43 52 4	2825	42 18	
4	α Arietis E.	108 28 2	2536	106 47 39	2551	105 7 37	2568	103 27	
	SUN W.	48 49 27	2890	50 21 58	2910	51 54 4	2929	53 25	
	Venus W.	23 50 7	2497	25 31 24	2514	27 12 18	2530	28 52	
5	α Arietis E.	95 15 22	2669	93 38 1	2688	92 1 5	2705	90 24	
	Jupiter E.	- - -	-	- - -	-	121 45 8	2540	120 4	
	SUN W.	60 58 6	3046	62 27 22	3064	63 56 16	3082	65 24	
6	Venus W.	37 9 57	2624	38 48 19	2640	40 26 20	2655	42 4	
	α Arietis E.	82 27 49	2815	80 53 40	2833	79 19 55	2852	77 46	
	Jupiter E.	111 49 33	2646	110 11 40	2663	108 34 11	2680	106 57	
7	SUN W.	72 42 3	3186	74 8 29	3203	75 34 35	3218	77 0	
	Venus W.	50 7 38	2738	51 43 27	2750	53 19 0	2763	54 54	
	α Arietis E.	70 5 35	2960	68 34 32	2978	67 3 51	2995	65 33	
8	Jupiter E.	98 56 52	2775	97 21 51	2789	95 47 9	2804	94 12	
	Aldebaran E.	100 19 23	2835	98 45 40	2849	97 12 16	2863	95 39	
	SUN W.	84 5 4	3304	85 29 11	3315	86 53 5	3328	88 16	
9	Venus W.	62 46 53	2829	64 20 43	2838	65 54 21	2849	67 27	
	α Arietis E.	58 7 26	3101	56 39 18	3119	55 11 31	3137	53 44	
	Jupiter E.	86 25 12	2881	84 52 29	2893	83 20 1	2905	81 47	
10	Aldebaran E.	87 58 0	2942	86 26 34	2954	84 55 23	2965	83 24	
	SUN W.	95 11 49	3391	96 34 16	3399	97 56 34	3408	99 18	
	Venus W.	75 12 18	2894	76 44 45	2899	78 17 5	2905	79 49	
11	Jupiter E.	74 9 50	2961	72 38 48	2969	71 7 56	2977	69 37	
	Aldebaran E.	75 52 51	3022	74 23 6	3031	72 53 32	3039	71 24	
	Mars E.	118 56 17	2938	117 24 42	2943	115 53 17	2949	114 22	
12	SUN W.	106 7 25	3445	107 28 51	3450	108 50 11	3454	110 11	
	Venus W.	87 28 56	2928	89 0 39	2931	90 32 19	2932	92 3	
	α Aquilæ W.	70 5 16	3925	71 18 11	3914	72 31 17	3903	73 44	
13	Jupiter E.	62 5 41	3011	60 35 42	3015	59 5 48	3019	57 35	
	Aldebaran E.	63 59 4	3076	62 30 25	3079	61 1 50	3084	59 33	
	Mars E.	106 47 23	2979	105 16 44	2983	103 46 10	2986	102 15	
14	SUN W.	116 56 58	3468	118 17 58	3468	119 38 58	3469	120 59	
	Venus W.	99 41 49	2935	101 13 24	2934	102 45 0	2932	104 16	
	α Aquilæ W.	79 53 7	3856	81 7 12	3851	82 21 22	3846	83 35	
15	Jupiter E.	50 7 41	3031	48 38 7	3031	47 8 33	3032	45 39	
	Aldebaran E.	52 11 54	3101	50 43 45	3103	49 15 39	3103	47 47	
	Mars E.	94 43 45	2994	93 13 25	2995	91 43 6	2993	90 12	
16	Pollux E.	96 21 30	3087	94 53 5	3088	93 24 41	3088	91 56	
	SUN W.	111 55 31	2916	113 27 29	2913	114 59 32	2907	116 31	
	α Aquilæ W.	89 47 59	3824	91 2 36	3822	92 17 16	3820	93 31	
17	Fomalhaut W.	56 19 48	3319	57 43 37	3309	59 7 38	3306	60 31	

MEAN TIME.

LUNAR DISTANCES.

	Star's Name and Position.	Midnight.	P. L. of diff.	XV ^h .	P. L. of diff.	XVIII ^h .	P. L. of diff.	XXI ^h .	P. L. of diff.
		° ' "		° ' "		° ' "		° ' "	
2	SUN W.	29 46 10	2660	31 23 44	2678	33 0 54	2696	34 37 39	2714
	Fomalhaut E.	53 32 53	2612	51 54 14	2642	50 16 16	2674	48 39 1	2709
	α Pegasi E.	72 54 48	2798	71 20 17	2824	69 46 20	2852	68 13 0	2881
3	SUN W.	42 35 8	2811	44 9 21	2832	45 43 8	2851	47 16 30	2870
	Venus W.	17 1 11	2433	18 43 59	2449	20 26 24	2465	22 8 27	2481
	Fomalhaut E.	40 45 11	2917	39 13 14	2969	37 42 23	3025	36 12 41	3087
	α Arietis E.	101 48 40	2601	100 9 46	2617	98 31 14	2635	96 53 6	2652
4	SUN W.	54 57 2	2969	56 27 54	2988	57 58 22	3007	59 28 26	3026
	Venus W.	30 32 59	2562	32 12 46	2578	33 52 11	2594	35 31 14	2609
	α Arietis E.	88 48 23	2742	87 12 39	2760	85 37 18	2778	84 2 22	2796
	Jupiter E.	118 24 59	2576	116 45 31	2594	115 6 28	2612	113 27 49	2629
5	SUN W.	66 52 57	3118	68 20 45	3136	69 48 11	3153	71 15 17	3169
	Venus W.	43 41 22	2684	45 18 24	2698	46 55 7	2712	48 31 31	2725
	α Arietis E.	76 13 36	2888	74 41 2	2905	73 8 50	2923	71 37 1	2942
	Jupiter E.	105 20 19	2713	103 43 56	2729	102 7 54	2744	100 32 13	2759
6	SUN W.	78 25 53	3248	79 51 6	3263	81 16 1	3277	82 40 40	3290
	Venus W.	56 29 17	2787	58 4 2	2798	59 38 33	2808	61 12 50	2819
	α Arietis E.	64 3 35	3031	62 34 0	3048	61 4 47	3066	59 35 56	3083
	Jupiter E.	92 38 41	2832	91 4 54	2845	89 31 24	2857	87 58 10	2870
	Aldebaran E.	94 6 22	2891	92 33 52	2904	91 1 38	2917	89 29 41	2930
7	SUN W.	89 40 9	3351	91 3 22	3361	92 26 23	3372	93 49 11	3381
	Venus W.	69 1 0	2865	70 34 4	2873	72 6 58	2880	73 39 42	2887
	α Arietis E.	52 17 3	3173	50 50 22	3192	49 24 3	3211	47 58 7	3231
	Jupiter E.	80 15 48	2925	78 44 1	2935	77 12 26	2944	75 41 3	2952
	Aldebaran E.	81 53 42	2985	80 23 11	2996	78 52 53	3005	77 22 46	3014
8	SUN W.	100 40 41	3422	102 2 33	3429	103 24 17	3435	104 45 54	3440
	Venus W.	81 21 24	2914	82 53 25	2919	84 25 20	2923	85 57 10	2926
	Jupiter E.	68 6 40	2990	66 36 15	2996	65 5 57	3002	63 35 46	3006
	Aldebaran E.	69 54 51	3052	68 25 43	3059	66 56 43	3065	65 27 50	3070
	Mars E.	112 50 51	2962	111 19 50	2966	109 48 55	2971	108 18 6	2976
9	SUN W.	111 32 38	3460	112 53 47	3463	114 14 53	3465	115 35 56	3466
	Venus W.	93 35 33	2935	95 7 8	2935	96 38 42	2936	98 10 15	2935
	α Aquilæ W.	74 58 0	3884	76 11 36	3877	77 25 19	3869	78 39 10	3863
	Jupiter E.	56 6 14	3025	54 36 32	3027	53 6 53	3029	51 37 16	3031
	Aldebaran E.	58 4 57	3091	56 36 36	3094	55 8 19	3096	53 40 5	3099
	Mars E.	100 45 13	2990	99 14 48	2993	97 44 26	2994	96 14 5	2994
10	SUN W.	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	Venus W.	105 48 18	2928	107 20 1	2926	108 51 47	2923	110 23 37	2920
	α Aquilæ W.	84 49 58	3837	86 4 22	3832	87 18 51	3829	88 33 23	3825
	Jupiter E.	44 9 27	3032	42 39 54	3031	41 10 19	3029	39 40 42	3026
	Aldebaran E.	46 19 29	3105	44 51 25	3105	43 23 21	3105	41 55 18	3105
	Mars E.	88 42 24	2992	87 12 1	2990	85 41 36	2988	84 11 8	2985
	Pollux E.	90 27 53	3087	88 59 28	3086	87 31 1	3085	86 2 33	3083
11	Venus W.	118 3 58	2898	119 36 20	2893	121 8 48	2888	- - -	- - -
	α Aquilæ W.	94 46 40	3819	96 1 22	3820	97 16 4	3820	98 30 46	3821
	Fomalhaut W.	61 56 15	3279	63 20 51	3269	64 45 39	3260	66 10 37	3250

MEAN TIME.									
LUNAR DISTANCES.									
Days of the Month.	Star's Name and Position.		Noon.	P. L. of diff.	III ^h .	P. L. of diff.	VI ^h .	P. L. of diff.	IX ^h .
			° ' "		° ' "		° ' "		° ' "
11	Jupiter	E.	38 11 2	3025	36 41 20	3022	35 11 34	3019	33 41
	Aldebaran	E.	40 27 14	3105	38 59 10	3104	37 31 5	3104	36 3
	Mars	E.	82 40 37	2983	81 10 3	2980	79 39 25	2976	78 8
	Pollux	E.	84 34 2	3080	83 5 28	3078	81 36 52	3074	80 8
12	α Aquilæ	W.	99 45 26	3823	101 0 4	3825	102 14 40	3830	103 29
	Fomalhaut	W.	67 35 47	3241	69 1 8	3232	70 26 39	3222	71 52
	Jupiter	E.	26 11 34	2995	24 41 15	2990	23 10 50	2985	21 40
	Mars	E.	70 33 49	2949	69 2 32	2943	67 31 7	2936	65 59
	Pollux	E.	72 43 42	3051	71 14 32	3046	69 45 16	3040	68 15
13	Fomalhaut	W.	79 3 33	3170	80 30 18	3160	81 57 15	3152	83 24
	α Pegasi	W.	62 21 47	3530	63 41 38	3509	65 1 52	3489	66 22
	Mars	E.	58 19 50	2897	56 47 27	2888	55 14 53	2881	53 42
	Pollux	E.	60 47 10	3004	59 17 2	2998	57 46 46	2990	56 16
	Regulus	E.	96 49 31	3006	95 19 25	2998	93 49 9	2991	92 18
14	Fomalhaut	W.	90 42 26	3102	92 10 33	3094	93 38 50	3087	95 7
	α Pegasi	W.	73 10 36	3385	74 33 10	3370	75 56 1	3356	77 19
	α Arietis	W.	29 34 34	3454	30 55 50	3401	32 18 6	3353	33 41
	Mars	E.	45 56 1	2832	44 22 15	2824	42 48 18	2816	41 14
	Pollux	E.	48 42 2	2946	47 10 42	2940	45 39 14	2931	44 7
	Regulus	E.	84 44 17	2944	83 12 54	2935	81 41 20	2927	80 9
15	Fomalhaut	W.	102 31 43	3043	104 1 2	3037	105 30 29	3031	107 0
	α Pegasi	W.	84 18 30	3281	85 43 4	3270	87 7 50	3260	88 32
	α Arietis	W.	40 48 6	3148	42 15 17	3123	43 42 59	3099	45 11
	Mars	E.	33 20 34	2762	31 45 16	2752	30 9 45	2744	28 34
	Pollux	E.	36 27 4	2888	34 54 30	2883	33 21 49	2876	31 48
	Regulus	E.	72 28 12	2877	70 55 23	2868	69 22 23	2859	67 49
	Saturn	E.	- - -	- - -	- - -	- - -	- - -	- - -	- - -
16	α Arietis	W.	52 38 28	2981	54 9 4	2965	55 40 1	2950	57 11
	Jupiter	W.	23 13 6	2750	24 48 40	2741	26 24 25	2732	28 0
	Aldebaran	W.	21 0 36	2890	22 33 8	2869	24 6 7	2852	25 39
	Regulus	E.	60 0 31	2808	58 26 14	2800	56 51 46	2792	55 17
	Saturn	E.	113 41 57	2820	112 7 55	2811	110 33 41	2802	108 59
	Spica η	E.	114 1 33	2823	112 27 35	2813	110 53 24	2803	109 19
17	α Arietis	W.	64 52 11	2867	66 25 12	2855	67 58 29	2843	69 32
	Jupiter	W.	36 3 0	2681	37 40 6	2672	39 17 24	2663	40 54
	Aldebaran	W.	33 31 23	2763	35 6 40	2751	36 42 12	2740	38 17
	Regulus	E.	47 21 20	2746	45 45 41	2738	44 9 52	2731	42 33
	Saturn	E.	101 4 8	2748	99 28 32	2739	97 52 44	2731	96 16
	Spica η	E.	101 24 0	2748	99 48 24	2740	98 12 37	2730	96 36
18	α Arietis	W.	77 23 17	2779	78 58 13	2769	80 33 21	2760	82 8
	Jupiter	W.	49 5 7	2614	50 43 43	2605	52 22 31	2598	54 1
	Aldebaran	W.	46 20 28	2677	47 57 38	2668	49 35 1	2659	51 12
	Regulus	E.	34 31 56	2696	32 55 11	2692	31 18 20	2688	29 41
	Saturn	E.	88 13 56	2679	86 36 48	2671	84 59 29	2663	83 21
	Spica η	E.	88 33 48	2680	86 56 41	2671	85 19 22	2663	83 41
19	α Arietis	W.	90 8 21	2708	91 44 50	2700	93 21 30	2692	94 58

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
11	Jupiter E.	32 11 52	3013	30 41 55	3009	29 11 53	3005	27 41 46	3001
	Aldebaran E.	34 34 54	3103	33 6 48	3102	31 38 41	3102	30 10 34	3102
	Mars E.	76 37 55	2968	75 7 2	2964	73 36 4	2959	72 5 0	2954
	Pollux E.	78 39 27	3069	77 10 39	3064	75 41 45	3060	74 12 46	3056
12	α Aquilæ W.	104 43 38	3839	105 58 0	3846	107 12 15	3853	108 26 23	3861
	Fomalhaut W.	73 18 15	3205	74 44 18	3195	76 10 33	3188	77 36 57	3178
	Jupiter E.	20 9 39	2973	18 38 52	2967	17 7 58	2961	- - -	- - -
	Mars E.	64 27 54	2924	62 56 6	2918	61 24 10	2910	59 52 4	2904
	Pollux E.	66 46 23	3029	65 16 46	3023	63 47 2	3017	62 17 10	3010
13	Fomalhaut W.	84 51 38	3135	86 19 5	3127	87 46 42	3119	89 14 29	3110
	α Pegasi W.	67 43 26	3451	69 4 45	3434	70 26 23	3417	71 48 20	3401
	Mars E.	52 9 17	2866	50 36 14	2857	49 3 0	2849	47 29 36	2841
	Pollux E.	54 45 47	2977	53 15 5	2969	51 44 13	2962	50 13 12	2954
	Regulus E.	90 48 11	2975	89 17 27	2968	87 46 34	2960	86 15 31	2951
4	Fomalhaut W.	96 35 52	3072	98 4 36	3064	99 33 30	3057	101 2 32	3050
	α Pegasi W.	78 42 31	3329	80 6 9	3316	81 30 2	3303	82 54 10	3293
	α Arietis W.	35 5 14	3271	36 29 59	3237	37 55 24	3205	39 21 27	3175
	Mars E.	39 39 49	2798	38 5 18	2789	36 30 35	2779	34 55 40	2771
	Pollux E.	42 35 47	2917	41 3 50	2910	39 31 44	2902	37 59 28	2896
	Regulus E.	78 37 40	2910	77 5 34	2902	75 33 18	2893	74 0 50	2885
5	Fomalhaut W.	108 29 45	3020	109 59 33	3015	111 29 27	3010	112 59 27	3006
	α Pegasi W.	89 57 57	3242	91 23 16	3234	92 48 45	3226	94 14 24	3219
	α Arietis W.	46 39 49	3056	48 8 53	3035	49 38 22	3017	51 8 14	2999
	Mars E.	26 58 10	2726	25 22 4	2717	23 45 46	2708	22 9 17	2699
	Pollux E.	30 16 1	2865	28 42 57	2860	27 9 47	2856	25 36 31	2852
	Regulus E.	66 15 49	2842	64 42 16	2834	63 8 32	2825	61 34 37	2817
	Saturn E.	119 56 9	2856	118 22 54	2847	116 49 27	2838	115 15 48	2828
16	α Arietis W.	58 42 52	2920	60 14 46	2906	61 46 57	2893	63 19 25	2879
	Jupiter W.	29 36 31	2715	31 12 51	2706	32 49 23	2698	34 26 6	2690
	Aldebaran W.	27 13 11	2817	28 47 17	2803	30 21 41	2789	31 56 24	2776
	Regulus E.	53 42 19	2776	52 7 19	2769	50 32 10	2760	48 56 50	2753
	Saturn E.	107 24 37	2783	105 49 47	2775	104 14 46	2766	102 39 33	2757
	Spica η E.	107 44 25	2785	106 9 37	2775	104 34 36	2766	102 59 24	2757
17	α Arietis W.	71 5 48	2821	72 39 49	2809	74 14 5	2799	75 48 34	2789
	Jupiter W.	42 32 33	2646	44 10 25	2638	45 48 28	2630	47 26 42	2622
	Aldebaran W.	39 54 1	2718	41 30 17	2707	43 6 47	2697	44 43 31	2687
	Regulus E.	40 57 46	2719	39 21 31	2711	37 45 6	2707	36 8 35	2701
	Saturn E.	94 40 34	2713	93 4 12	2705	91 27 38	2696	89 50 53	2687
	Spica η E.	95 0 26	2714	93 24 4	2705	91 47 30	2696	90 10 45	2687
18	α Arietis W.	83 44 15	2742	85 19 59	2733	86 55 55	2724	88 32 3	2716
	Jupiter W.	55 40 38	2581	57 19 59	2574	58 59 30	2565	60 39 13	2558
	Aldebaran W.	52 50 24	2640	54 28 24	2631	56 6 37	2623	57 45 1	2613
	Regulus E.	28 4 24	2686	26 27 25	2684	24 50 24	2685	23 13 24	2687
	Saturn E.	81 44 17	2646	80 6 25	2638	78 28 21	2629	76 50 6	2621
	Spica η E.	82 4 12	2647	80 26 21	2640	78 48 20	2632	77 10 8	2624
19	α Arietis W.	96 35 19	2678	98 12 28	2672	99 49 46	2665	101 27 13	2658

CONFIGURATIONS OF THE SATELLITES OF JUPITER

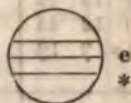
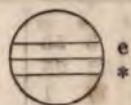
At 11^h, MEAN TIME.

Days of the Month.	<i>Apparent West.</i>				<i>Apparent East.</i>			
1			•3	•1○	2•		•4	
2			2•	1•○				•4
3				•2○	•1	•3		•4
4				1•	○	•2	3•	4•
5	2•○				○	•1	3•	4•
6			•2	•13•	○		4•	
7	4•○		3•		○	1•		
8			•3	4•	•1○	2•		
9		4•	2•	•3	○			
10		4•		•2	○	•1	•3	
11		4•		1•	○	•2	•3	
12		•4			○	•2	•1	3•
13		•4	•2	•1	3•	○		
14			3•	•4	○	•2	1•	
15			•3		•1	•4	○	2•
16				2•	•3	○	1•	•4
17	●•1			•2	○	•3		•4
18				1•	○	•2	•3	•4
19					○	•2	•1	3•
20	3•○		2•	1•	○			4•
21	●•2		3•		○	1•		4•
22			•3	•1	○	2•	4•	
23				•3	2•	○	1•	4•
24				•2	4•	○	•3	
25			4•		1•	○	•2	•3
26		4•			○	2•	•1	3•
27	4•		2•	1•	○	3•		
28	•4		3•		○	•1		
29		•4	•3	•1	○		2•	
30			•4	•3	2•	○	1•	
31			•2	•4	•1	○	•3	

This Table represents, at 11^h after *Mean Noon* of each day of the month, the relative position of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in the focus of a telescope that inverts objects. Jupiter is indicated by the white circles (○) in the centre of the page—the Satellites by points. The numerals 1, 2, 3, or 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of their motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow of Jupiter.

ECLIPSES OF THE SATELLITES OF JUPITER.

TELLITE.	Days of the Month.	Mean Time.	Sidereal Time.	PHASES as seen in a Telescope that inverts.
I.	1*	h m s 13 30 38.4	h m s 6 12 18.5	Em.
	3*	7 59 20.1	0 47 58.9	Em.
	5	2 28 0.1	19 23 37.6	Em.
	6	20 56 42.9	13 59 19.1	Em.
	8*	15 25 23.7	8 34 58.5	Em.
	10*	9 54 7.8	3 10 41.3	Em.
	12	4 22 49.9	21 46 22.1	Em.
	13	22 51 35.1	16 22 6.1	Em.
	15*	17 20 17.9	10 57 47.5	Em.
	17*	11 49 4.6	5 33 32.9	Em.
	19*	6 17 48.5	0 9 15.5	Em.
	21	0 46 36.8	18 45 2.5	Em.
	22	19 15 21.5	13 20 46.0	Em.
	24*	13 44 10.6	7 56 33.7	Em.
	26*	8 12 56.9	2 32 18.8	Em.
	28	2 41 47.1	21 8 7.6	Em.
	29	21 10 33.8	15 43 53.0	Em.
	31*	15 39 25.3	10 19 43.3	Em.
II.	3*	17 11 34.3	10 1 43.8	Em.
	7*	6 30 20.7	23 34 31.1	Em.
	10	19 48 34.9	13 6 46.1	Em.
	14*	9 7 18.9	2 39 31.0	Em.
	17	22 25 33.5	16 11 46.4	Em.
	21*	11 44 13.5	5 44 27.2	Em.
	25	1 2 29.0	19 16 43.5	Em.
	28*	14 21 6.1	8 49 21.5	Em.
III.	2*	15 48 3.1	8 34 2.3	Em.
	9	19 49 35.1	13 3 49.9	Em.
	16	23 50 42.3	17 33 12.6	Em.
	24	1 26 51.9	19 37 13.9	Im.
	24	3 51 48.0	22 2 33.8	Em.
	31*	5 27 19.7	0 5 57.1	Im.
	31*	7 53 3.3	2 32 4.7	Em.



APPROXIMATE SIDEREAL TIME
OF THE
OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER
AND OF THE
TRANSITS OF THE SATELLITES AND THEIR SHADOWS
OVER THE DISC OF THE PLANET.

Satellite.	OCCULTATIONS.		TRANSITS OF SATELLITES.		TRANSITS OF SE	
	Immersion.	Emersion.	Ingress.	Egress.	Ingress.	
I.	d h m	d h m	d h m	d h m	d h m	d
	1* 3 56		2* 1 12	2* 3 28	2* 1 27	2*
	3* 22 28		4 19 45	4 22 1	4 20 3	4*
	5 17 1		5 14 18	5 16 34	5 14 39	5
	6 11 34		7* 8 51	7* 11 6	7* 9 15	7
	8* 6 7		9* 3 23	9* 5 39	9* 3 50	9*
	10* 0 40	In	11* 21 57	11* 0 12	11* 22 26	11*
	12 19 13		12 16 29	13 18 45	12 17 2	13
	13 13 46	the	14* 11 3	14 13 19	14 11 37	14
	15* 8 19		16* 5 36	16* 7 52	16* 6 13	16*
	17* 2 52	Shadow.	18* 0 9	18* 2 25	18* 0 49	18*
	19 21 25		20 18 42	20 20 58	20 19 25	20
	20 15 58		21 13 15	21 15 31	21 14 0	21
	22* 10 32		23* 7 48	23* 10 5	23* 8 36	23*
	24* 5 5		25* 2 22	25* 4 38	25* 3 12	25*
	26* 23 38		27 20 55	27* 23 11	27 21 48	27*
	27 18 12		28 15 29	28 17 45	28 16 23	29
	29 12 45		30* 10 2	30 12 18	30* 10 59	30
	31* 7 19					
II.	3* 7 18	In	1 12 37	1 15 13	1 12 25	1
	7 20 39		5* 1 59	5* 4 34	5* 1 57	5*
	10* 10 0	the	8 15 20	9 17 56	8 15 29	9
	14* 23 22		12* 4 41	12* 7 17	12* 5 1	12*
	17 12 44	Shadow.	16 18 3	16 20 39	16 18 33	16
	21* 2 6		19* 7 25	19* 10 1	19* 8 6	19*
	24 15 28		23 20 47	23* 23 24	23 21 38	23*
	28* 4 51		26* 10 10	26 12 47	26 11 11	26
	31 18 15		30* 23 33	30* 2 10	30* 0 43	30*
III.	2* 5 52	In the Shadow.	6 19 44	6 21 56	6 20 20	6*
	9* 9 36		13* 23 28	13* 1 42	13* 0 49	13*
	16 13 20		20* 3 13	20* 5 29	20* 5 18	20*
	23 17 7		27* 7 2	27* 9 21	27* 9 47	27
	31 20 58		24 19 24			
			31 23 18			

Days of the Month.	For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .505048. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Days of the Year.	Fractions of the Year.
	Logarithms of							
	A	B	C	D				
1	+0.8180	+1.2801	+9.7514	−0.2065	^h 7 ^m 19 ^s 20.93	253	334	.914
2	0.7970	1.2829	9.7541	0.2054	7 15 25.02	254	335	.917
3	0.7747	1.2855	9.7568	0.2044	7 11 29.11	255	336	.920
4	+0.7511	+1.2881	+9.7594	−0.2036	7 7 33.20	256	337	.923
5	0.7260	1.2904	9.7621	0.2029	7 3 37.29	257	338	.925
6	0.6992	1.2926	9.7647	0.2023	6 59 41.37	258	339	.928
7	+0.6705	+1.2947	+9.7674	−0.2019	6 55 45.46	259	340	.931
8	0.6397	1.2966	9.7700	0.2017	6 51 49.55	260	341	.934
9	0.6063	1.2984	9.7727	0.2016	6 47 53.64	261	342	.936
0	+0.5699	+1.3001	+9.7753	−0.2018	6 43 57.72	262	343	.939
1	0.5301	1.3016	9.7780	0.2020	6 40 1.81	263	344	.942
2	0.4861	1.3029	9.7806	0.2025	6 36 5.90	264	345	.945
3	+0.4370	+1.3041	+9.7832	−0.2032	6 32 9.99	265	346	.947
4	0.3804	1.3052	9.7858	0.2040	6 28 14.08	266	347	.950
5	0.3176	1.3061	9.7884	0.2050	6 24 18.16	267	348	.953
6	+0.2424	+1.3069	+9.7911	−0.2062	6 20 22.25	268	349	.956
7	0.1512	1.3075	9.7937	0.2075	6 16 26.34	269	350	.958
8	0.0356	1.3081	9.7962	0.2090	6 12 30.43	270	351	.961
9	+9.8774	+1.3084	+9.7987	−0.2108	6 8 34.51	271	352	.964
0	9.6256	1.3087	9.8013	0.2126	6 4 38.60	272	353	.966
1	+8.9538	1.3088	9.8038	0.2147	6 0 42.69	273	354	.969
2	−9.3835	+1.3088	+9.8064	−0.2169	5 56 46.78	274	355	.972
3	9.7589	1.3086	9.8088	0.2193	5 52 50.87	275	356	.975
4	9.9571	1.3083	9.8113	0.2218	5 48 54.95	276	357	.977
5	−0.0926	+1.3078	+9.8137	−0.2245	5 44 59.04	277	358	.980
6	0.1956	1.3073	9.8162	0.2274	5 41 3.13	278	359	.983
7	0.2787	1.3065	9.8187	0.2304	5 37 7.22	279	360	.986
8	−0.3484	+1.3057	+9.8211	−0.2335	5 33 11.30	280	361	.988
9	0.4082	1.3047	9.8235	0.2368	5 29 15.39	281	362	.991
0	0.4607	1.3035	9.8259	0.2403	5 25 19.48	282	363	.994
1	0.5074	1.3023	9.8283	0.2439	5 21 23.57	283	364	.997
2	−0.5494	+1.3008	+9.8307	−0.2477	5 17 27.65	284	365	.999

266 OBLIQUITY OF THE ECLIPTIC.

1834.		Apparent Obliquity.	The Sun's		Equation of Equinoxes.		Ma Long of C ascen No
			Horizontal Parallax.	Aberration.	In Long.	In A.R. (in time.)	
Jan.	1	23° 27' 37" 98	8" 72	—20" 71	—16" 78	—1" 03	95 3
	11	38" 13	8" 72	20" 70	16" 41	1" 00	95
	21	38" 38	8" 71	20" 69	16" 15	0" 99	94 3
	31	23 27 38" 61	8" 70	20" 66	16" 03	0" 98	94
Feb.	10	38" 91	8" 69	20" 62	16" 07	0" 98	93 3
	20	39" 13	8" 67	20" 58	16" 24	0" 99	92 5
March	2	23 27 39" 36	8" 65	20" 53	16" 55	1" 01	92 2
	12	39" 49	8" 63	20" 47	16" 94	1" 04	91 5
	22	39" 62	8" 60	20" 42	17" 38	1" 06	91 2
April	1	23 27 39" 62	8" 58	20" 36	17" 80	1" 09	90 5
	11	39" 62	8" 55	20" 30	18" 15	1" 11	90 2
	21	39" 52	8" 53	20" 25	18" 41	1" 13	89 4
May	1	23 23 39" 45	8" 51	20" 19	18" 52	1" 13	89 1
	11	39" 31	8" 49	20" 15	18" 51	1" 13	88 4
	21	39" 19	8" 47	20" 11	18" 35	1" 12	88 1
June	31	23 27 39" 10	8" 46	20" 07	18" 07	1" 11	87 4
	10	39" 05	8" 45	20" 05	17" 70	1" 08	87
	20	39" 11	8" 44	20" 03	17" 29	1" 06	86 3
July	30	23 27 39" 18	8" 44	20" 03	16" 86	1" 03	86
	10	39" 37	8" 44	20" 03	16" 47	1" 01	85 3
	20	39" 54	8" 44	20" 04	16" 15	0" 99	85
Aug.	30	23 27 39" 81	8" 45	20" 06	15" 95	0" 98	84 3
	9	40" 04	8" 46	20" 09	15" 90	0" 97	83 3
	19	40" 31	8" 48	20" 13	15" 96	0" 98	83 5
Sept.	29	23 27 40" 51	8" 50	20" 17	16" 18	0" 99	82 3
	8	40" 73	8" 52	20" 22	16" 48	1" 01	82 4
	18	40" 89	8" 54	20" 28	16" 85	1" 03	81 3
Oct.	28	23 27 41" 00	8" 57	20" 33	17" 26	1" 06	81 5
	8	40" 97	8" 59	20" 39	17" 63	1" 08	80 4
	18	40" 96	8" 62	20" 45	17" 93	1" 10	80 1
Nov.	28	23 27 40" 83	8" 64	20" 51	18" 11	1" 11	79 4
	7	40" 69	8" 66	20" 56	18" 15	1" 11	79 1
	17	40" 60	8" 68	20" 61	18" 04	1" 10	78 4
Dec.	27	23 27 40" 48	8" 70	20" 64	17" 77	1" 09	78
	7	40" 46	8" 71	20" 68	17" 38	1" 06	77 3
	17	40" 44	8" 72	20" 70	16" 94	1" 04	77
	27	23 27 40" 55	8" 72	20" 71	16" 45	1" 01	76 3
	37	40" 65	8" 72	—20" 71	—16" 03	—0" 98	76

Mean Obliquity, Jan. 1, 1834 = 23° 27' 39" 26.

Daily
—3

JANUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
1	^h 17 ^m 10 ^s 29.60	[°] S. 21 ['] 32 ["] 6.9	0.0359392	^h 22 ^m 28.9	[°] 193 48 6.8	[°] N. 3 46 51.0	9.6142820	
2	17 15 33.43	21 46 33.3	.0431545	22 30.2	197 17 31.6	3 24 50.6	.6195331	
3	17 20 46.87	22 0 30.7	.0500296	22 31.6	200 41 54.2	3 2 37.1	.6245287	
4	17 26 9.04	22 13 53.1	.0565763	22 33.2	204 1 36.6	2 40 15.7	.6292633	
5	17 31 39.19	22 26 35.9	.0628077	22 34.8	207 17 0.7	2 17 51.2	.6337342	
6	17 37 16.57	22 38 33.9	.0687366	22 36.6	210 28 26.8	1 55 27.2	.6379386	
7	17 43 0.63	22 49 43.0	.0743750	22 38.5	213 36 14.7	1 33 7.4	.6418748	
8	17 48 50.79	22 59 59.8	.0797349	22 40.5	216 40 43.0	1 10 54.5	.6455425	
9	17 54 46.55	23 9 20.7	.0848280	22 42.6	219 42 10.2	0 48 51.2	.6489413	
10	18 0 47.50	23 17 42.9	.0896649	22 44.7	222 40 52.8	0 26 59.7	.6520715	
11	18 6 53.21	23 25 3.7	.0942556	22 46.9	225 37 7.2	N. 0 5 21.8	.6549340	
12	18 13 3.32	23 31 20.7	.0986105	22 49.2	228 31 9.5	S. 0 16 0.7	.6575291	
13	18 19 17.51	23 36 31.5	.1027387	22 51.6	231 23 14.6	0 37 6.3	.6598582	
14	18 25 35.45	23 40 34.2	.1066482	22 54.0	234 13 37.3	0 57 53.9	.6619219	
15	18 31 56.91	23 43 26.8	.1103476	22 56.5	237 2 31.4	1 18 21.8	.6637213	
16	18 38 21.59	23 45 8.0	.1138436	22 59.1	239 50 10.6	1 38 29.1	.6652577	
17	18 44 49.29	23 45 35.9	.1171434	23 1.6	242 36 48.4	1 58 14.8	.6665312	
18	18 51 19.79	23 44 49.0	.1202532	23 4.2	245 22 37.6	2 17 37.7	.6675434	
19	18 57 52.87	23 42 46.0	.1231784	23 6.8	248 7 51.1	2 36 36.9	.6682944	
20	19 4 28.35	23 39 26.1	.1259242	23 9.5	250 52 40.7	2 55 11.2	.6687851	
21	19 11 6.06	23 34 47.4	.1284953	23 12.2	253 37 19.3	3 13 19.5	.6690157	
22	19 17 45.86	23 28 49.5	.1308956	23 15.0	256 21 59.7	3 31 0.8	.6689860	
23	19 24 27.55	23 21 30.9	.1331284	23 17.8	259 6 53.2	3 48 14.0	.6686964	
24	19 31 11.03	23 12 51.0	.1351968	23 20.6	261 52 12.3	4 4 57.5	.6681466	
25	19 37 56.15	23 2 48.6	.1371034	23 23.4	264 38 9.2	4 21 10.2	.6673362	
26	19 44 42.81	22 51 23.4	.1388496	23 26.3	267 24 56.6	4 36 50.5	.6662649	
27	19 51 30.87	22 38 33.9	.1404373	23 29.2	270 12 46.7	4 51 56.7	.6649314	
28	19 58 20.21	22 24 20.0	.1418673	23 32.1	273 1 52.3	5 6 27.0	.6633356	
29	20 5 10.77	22 8 40.7	.1431394	23 35.0	275 52 26.6	5 20 19.4	.6614763	
30	20 12 2.43	21 51 35.3	.1442538	23 38.0	278 44 42.8	5 33 31.9	.6593525	
31	20 18 55.11	21 33 3.5	.1452094	23 40.9	281 38 54.6	5 46 1.8	.6569632	
32	20 25 48.70	S. 21 13 4.5	0.1460051	23 43.9	284 35 16.0	S. 5 57 46.6	9.6543075	

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			Days of the Month.
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vec.	
1	20 25 48.70	8. 21 13. 4. 5	1.4660051	23 43.9	284 35 16.0	S. 5 57 41.6	9.4643073	1
2	20 32 43.16	20 51 28.0	1.4663384	23 46.9	287 34 1.4	6 8 43.3	9.4651300	2
3	20 39 38.41	20 28 43.4	1.471072	23 49.9	290 35 26.1	6 18 48.6	9.4681590	3
4	20 46 34.36	20 4 20.4	1.474075	23 52.9	293 39 43.5	6 27 58.9	9.4697330	4
5	20 53 30.96	19 38 29.0	1.475357	23 55.9	296 47 16.3	6 36 10.5	9.4710044	5
6	21 0 28.15	19 11 8.4	1.474669	23 58.9	299 58 14.6	6 43 18.8	9.4707009	6
7	21 7 25.89	18 42 18.6	1.472555	* *	303 12 58.3	6 49 19.2	9.4687421	7
8	21 14 24.11	18 11 59.7	1.468352	0 2.0	306 31 45.8	6 54 5.5	9.4682111	8
9	21 21 22.74	17 40 11.6	1.462186	0 5.0	309 54 55.6	6 57 35.0	9.4673416	9
10	21 28 21.73	17 6 54.3	1.453969	0 8.1	313 22 47.6	6 59 38.7	9.4658625	10
11	21 35 21.01	16 32 8.2	1.443508	0 11.1	316 55 41.6	7 0 10.8	9.4638343	11
12	21 42 20.53	15 55 53.7	1.431004	0 14.2	320 33 59.2	6 59 4.5	9.46074993	12
13	21 49 20.19	15 18 11.2	1.416036	0 17.2	324 18 1.7	6 56 12.0	9.45617064	
14	21 56 19.89	14 39 1.8	1.398575	0 20.3	328 8 11.3	6 51 25.5	9.4506872	
15	22 3 19.55	13 58 26.5	1.378481	0 23.3	332 4 49.9	6 44 36.4	9.443576	
16	22 10 19.01	13 16 26.9	1.355599	0 26.4	336 8 20.7	6 35 36.4	9.4330356	
17	22 17 18.09	12 33 4.4	1.329757	0 29.4	340 19 5.7	6 24 16.6	9.4174434	
18	22 24 16.63	11 48 21.6	1.300767	0 32.5	344 37 26.9	6 10 28.4	9.397090	
19	22 31 14.38	11 2 21.1	1.268441	0 35.5	349 3 45.7	5 54 3.5	9.3628654	
20	22 38 11.03	10 15 6.5	1.232562	0 38.5	353 38 21.3	5 34 54.5	9.3159506	
21	22 45 6.22	9 26 41.8	1.192903	0 41.5	358 21 31.4	5 12 54.8	9.2490105	
22	22 51 59.54	8 37 11.8	1.149234	0 44.4	3 13 31.1	4 47 59.7	9.1420967	
23	22 58 50.47	7 46 42.6	1.101312	0 47.3	8 14 30.8	4 20 6.8	9.0352696	
24	23 5 38.41	6 55 21.2	1.048892	0 50.2	13 24 37.3	3 49 16.6	9.0285953	
25	23 12 22.63	6 3 15.5	0.991730	0 53.0	18 43 51.1	3 15 33.2	9.0221477	
26	23 19 2.31	5 10 34.7	0.929587	0 55.7	24 12 6.0	2 39 5.0	9.0160066	
27	23 25 36.49	4 17 29.8	0.862237	0 58.3	29 49 7.8	2 0 5.9	9.0102565	
28	23 32 4.08	3 24 12.8	0.789483	1 0.9	35 34 32.7	1 18 55.0	9.0049853	
29	23 38 23.87	S. 2 30 56.9	0.711162	1 3.3	41 27 48.3	S. 0 35 57.4	9.0002806	

MARCH, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^{h m s} 23 38 23.87	^{° ′ ″} S. 2 30 56.9	0.0711162	^{h m} 1 3.3	^{° ′ ″} 41 27 48.3	^{° ′ ″} S. 0 35 57.4	9.5002806
23 44 34.49	1 37 57.2	.0627143	1 5.5	47 28 10.6	N. 0 8 16.0	.4962265
23 50 34.49	S. 0 45 29.8	.0537364	1 7.5	53 34 45.2	0 53 9.3	.4929014
23 56 22.27	N. 0 6 8.4	.0441822	1 9.4	59 46 27.5	1 38 1.9	.4903740
0 1 56.15	0 56 39.2	.0340586	1 11.0	66 2 3.9	2 22 10.9	.4886973
0 7 14.40	1 45 44.1	.0233812	1 12.3	72 20 12.7	3 4 52.5	.4879087
0 12 15.26	2 33 4.1	.0121743	1 13.4	78 39 25.9	3 45 23.7	.4880258
0 16 56.97	3 18 20.1	0.0004712	1 14.1	84 58 13.9	4 23 5.0	.4890458
0 21 17.82	4 1 13.4	9.9883147	1 14.5	91 15 5.2	4 57 22.1	.4909458
0 25 16.17	4 41 26.3	.9757572	1 14.5	97 28 32.5	5 27 47.3	.4936847
0 28 50.47	5 18 41.2	.9628584	1 14.1	103 37 13.5	5 54 0.6	.4972047
0 31 59.35	5 52 41.8	.9496879	1 13.3	109 39 54.2	6 15 49.7	.5014342
0 34 41.65	6 23 13.0	.9363221	1 12.1	115 35 30.4	6 33 10.5	.5062934
0 36 56.37	6 50 1.3	.9228440	1 10.3	121 23 8.6	6 46 5.4	.5116965
0 38 42.79	7 12 54.3	.9093445	1 8.2	127 2 7.7	6 54 43.1	.5175559
0 40 0.46	7 31 41.3	.8959199	1 5.5	132 31 56.8	6 59 16.9	.5237839
0 40 49.29	7 46 13.8	.8826705	1 2.3	137 52 16.9	7 0 3.2	.5302976
0 41 9.47	7 56 24.9	.8697019	0 58.7	143 2 58.6	6 57 21.5	.5370182
0 41 1.64	8 2 10.6	.8571214	0 54.7	148 4 0.5	6 51 31.7	.5438743
0 40 26.80	8 3 29.4	.8450381	0 50.1	152 55 29.0	6 42 54.1	.5508002
0 39 26.38	8 0 23.1	.8335617	0 45.2	157 37 36.3	6 31 48.8	.5577386
0 38 2.29	7 53 57.1	.8227968	0 39.8	162 10 39.4	6 18 34.7	.5646393
0 36 16.76	7 41 20.5	.8128448	0 34.2	166 34 58.0	6 3 30.0	.5714584
0 34 12.53	7 25 47.1	.8037988	0 28.2	170 50 55.4	5 46 51.0	.5781592
0 31 52.60	7 6 34.4	.7957402	0 21.9	174 58 55.9	5 28 52.8	.5847102
0 29 20.32	6 44 4.4	.7887389	0 15.5	178 59 25.0	5 9 48.6	.5910846
0 26 39.19	6 18 42.6	.7828469	0 8.9	182 52 48.7	4 49 50.3	.5972618
0 23 52.85	5 50 58.3	.7780975	{ ^{0 23 55.3} 23 48.8}	186 39 32.6	4 29 8.7	.6032239
0 21 4.87	5 21 22.2	.7745074	23 48.8	190 20 2.4	4 7 52.9	.6089566
0 18 18.82	4 50 27.5	.7720735	23 42.2	193 54 43.0	3 46 11.1	.6144489
0 15 37.99	4 18 47.0	.7707738	23 35.7	197 23 58.4	3 24 10.2	.6196925
0 13 5.42	N. 3 46 53.1	9.7705697	23 29.4	200 48 12.0	N. 3 1 56.3	9.6246799

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Le Rad
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	A
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	0 13 54.2	N. 3 46 53.1	9.7705697	23 29.4	200 48 12.0	N. 3 1 56.3	9.62
2	0 10 43.78	3 15 16.3	.7714084	23 23.4	204 7 46.4	2 39 34.8	.62
3	0 8 35.37	2 44 25.3	.7732249	23 17.6	207 23 3.2	2 17 10.2	.63
4	0 6 42.13	2 14 45.0	.7759464	23 12.0	210 34 22.4	1 54 46.3	.63
5	0 5 5.53	1 46 37.6	.7794931	23 6.8	213 42 4.0	1 32 26.6	.64
6	0 3 46.68	1 20 21.3	.7837834	23 1.8	216 46 26.8	1 10 13.9	.64
7	0 2 46.34	0 56 11.2	.7887354	22 57.2	219 47 48.6	0 48 11.0	.64
8	0 2 4.94	0 34 18.6	.7942681	22 52.9	222 46 26.6	0 26 19.8	.65
9	0 1 42.65	N. 0 14 52.2	.8003049	22 48.9	225 42 36.9	N. 0 4 42.4	.65
10	0 1 39.38	S. 0 2 2.5	.8067736	22 45.2	228 36 35.5	S. 0 16 39.7	.65
11	0 1 54.88	0 16 21.7	.8136073	22 41.8	231 28 37.5	0 37 44.9	.65
12	0 2 28.74	0 28 4.2	.8207455	22 38.7	234 18 57.3	0 58 31.8	.66
13	0 3 20.42	0 37 10.2	.8281326	22 35.9	237 7 49.1	1 18 59.1	.66
14	0 4 29.34	0 43 41.1	.8357200	22 33.4	239 55 26.4	1 39 5.8	.66
15	0 5 54.81	0 47 39.4	.8434642	22 31.1	242 42 2.5	1 58 50.8	.66
16	0 7 36.16	0 49 8.2	.8513276	22 29.1	245 27 50.5	2 18 13.0	.66
17	0 9 32.68	0 48 11.8	.8592765	22 27.4	248 13 2.9	2 37 11.5	.66
18	0 11 43.68	0 44 54.0	.8672822	22 25.8	250 57 52.2	2 55 45.0	.66
19	0 14 8.48	0 39 19.4	.8753209	22 24.5	253 42 31.0	3 13 52.5	.66
20	0 16 46.41	0 31 32.6	.8833713	22 23.4	256 27 11.5	3 31 33.0	.66
21	0 19 36.87	0 21 38.3	.8914147	22 22.5	259 12 5.5	3 48 45.3	.66
22	0 22 39.25	S. 0 9 41.1	.8994367	22 21.7	261 57 25.7	4 5 27.9	.66
23	0 25 53.02	N. 0 4 14.4	.9074243	22 21.2	264 43 23.9	4 21 39.6	.66
24	0 29 17.65	0 20 3.6	.9153664	22 20.8	267 30 12.8	4 37 18.9	.66
25	0 32 52.68	0 37 42.2	.9232537	22 20.6	270 18 5.2	4 52 24.0	.66
26	0 36 37.68	0 57 5.7	.9310794	22 20.6	273 7 13.6	5 6 53.2	.66
27	0 40 32.29	1 18 10.1	.9388366	22 20.7	275 57 50.8	5 20 44.4	.66
28	0 44 36.15	1 40 51.2	.9465201	22 20.9	278 50 10.3	5 33 55.6	.65
29	0 48 48.97	2 5 5.1	.9541253	22 21.3	281 44 25.7	5 46 24.2	.65
30	0 53 10.49	2 30 48.0	.9616476	22 21.9	284 40 51.1	5 58 7.5	.65
31	0 57 40.52	N. 2 57 56.5	.9690841	22 22.6	287 39 41.3	S. 6 9 2.7	9.651

MERCURY.

271

MAY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
1	0 57 40.52	N. 2 57 56.5	9.9690841	22 22.6	287 39 41.3	S. 6 9 2.7	9.6512883
2	1 2 18.87	3 26 26.6	9.9764309	22 23.4	290 41 11.2	6 19 6.4	9.6480890
3	1 7 5.42	3 56 15.3	9.9836855	22 24.4	293 45 36.3	6 28 14.9	9.6446209
4	1 12 0.05	4 27 18.4	9.9908448	22 25.4	296 53 13.0	6 36 24.7	9.6408839
5	1 17 2.71	4 59 33.1	9.9979050	22 26.7	300 4 18.0	6 43 31.0	9.6368784
6	1 22 13.39	5 32 55.9	0.0048634	22 28.1	303 19 8.9	6 49 29.3	9.6326051
7	1 27 32.09	6 7 23.4	0.0117165	22 29.5	306 38 4.0	6 54 14.3	9.6280659
8	1 32 58.84	6 42 52.3	0.0184603	22 31.2	310 1 22.1	6 57 40.2	9.6232637
9	1 38 33.74	7 19 19.0	0.0250901	22 32.9	313 29 23.0	6 59 41.2	9.6182019
10	1 44 16.90	7 56 40.3	0.0316097	22 34.9	317 2 26.4	7 0 10.4	9.6128861
11	1 50 8.44	8 34 52.4	0.0379864	22 36.9	320 40 54.0	6 59 0.9	9.6078333
12	1 56 8.55	9 13 51.5	0.0442408	22 39.1	324 25 7.4	6 56 5.1	9.6015233
13	2 2 17.40	9 53 33.9	0.0503562	22 41.5	328 15 28.4	6 51 14.9	9.5954978
14	2 8 35.23	10 33 55.2	0.0563240	22 44.0	332 12 19.4	6 44 22.0	9.5892621
15	2 15 2.26	11 14 51.1	0.0621343	22 46.6	336 16 3.1	6 35 17.8	9.5828346
16	2 21 38.73	11 56 16.8	0.0677761	22 49.5	340 27 1.7	6 23 53.5	9.5762377
17	2 28 24.93	12 38 7.0	0.0732369	22 52.4	344 45 37.4	6 10 0.7	9.5694997
18	2 35 21.09	13 20 16.1	0.0785031	22 55.6	349 12 10.9	5 53 30.9	9.5626534
19	2 42 27.46	14 2 38.0	0.0835594	22 58.9	353 47 1.9	5 34 16.8	9.5557371
20	2 49 44.32	14 45 6.0	0.0883892	23 2.5	358 30 28.3	5 12 11.7	9.5487972
21	2 57 11.83	15 27 32.5	0.0929739	23 6.2	3 22 44.3	4 47 11.2	9.5418856
22	3 4 50.19	16 9 49.6	0.0972938	23 10.0	8 24 0.7	4 19 13.0	9.5350619
23	3 12 39.51	16 51 48.4	0.1018283	23 14.1	13 34 24.2	3 48 17.3	9.5283940
24	3 20 39.81	17 33 19.5	0.1050555	23 18.4	18 53 54.8	3 14 28.6	9.5219549
25	3 28 51.05	18 14 12.5	0.1084520	23 22.8	24 22 26.1	2 37 55.6	9.5158248
26	3 37 13.07	18 54 16.2	0.1114952	23 27.4	29 59 43.7	1 58 52.1	9.5100885
27	3 45 45.54	19 33 19.3	0.1141621	23 32.2	35 45 23.9	1 17 37.5	9.5048335
28	3 54 28.05	20 11 9.7	0.1164306	23 37.1	41 38 53.5	S. 0 34 37.1	9.5001476
29	4 3 19.99	20 47 34.8	0.1182800	23 42.2	47 39 28.0	N. 0 9 38.2	9.4961152
30	4 12 20.59	21 22 22.2	0.1196916	23 47.4	53 46 13.2	0 54 32.1	9.4928142
31	4 21 28.94	21 55 19.8	0.1206502	23 52.8	59 58 4.0	1 39 24.0	9.4903119
32	4 30 43.95	N. 22 26 15.8	0.1211437	23 58.2	66 13 46.8	N. 2 23 31.1	9.4886624

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	L	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Ra	
	^h ^m ^s	^o ['] ["]		^h ^m	^o ['] ["]	^o ['] ["]		
1	4 30 43.95	N. 22 26 15.8	0.1211437	23 58.2	66 13 46.8	N. 2 23 31.1	9.4	
2	4 40 4.38	22 54 58.8	*1211640	* *	72 31 58.8	3 6 9.2	*4	
3	4 49 28.89	23 21 19.6	*1207079	0 3.7	78 51 12.9	3 46 35.8	*4	
4	4 58 56.05	23 45 9.2	*1197763	0 9.2	85 9 58.8	4 24 11.5	*4	
5	5 8 24.39	24 6 21.1	*1183752	0 14.7	91 26 45.4	4 58 21.8	*4	
6	5 17 52.36	24 24 49.8	*1165152	0 20.3	97 40 5.4	5 28 39.5	*4	
7	5 27 18.49	24 40 31.9	*1142097	0 25.8	103 48 36.7	5 54 44.9	*4	
8	5 36 41.37	24 53 26.2	*1114768	0 31.2	109 51 5.5	6 16 25.8	*50	
9	5 45 59.65	25 3 32.7	*1083363	0 36.6	115 46 27.9	6 33 38.4	*50	
10	5 55 12.03	25 10 52.9	*1048095	0 41.9	121 33 51.3	6 46 25.2	*51	
11	6 4 17.40	25 15 30.0	*1009203	0 47.1	127 12 33.9	6 54 55.2	*51	
12	6 13 14.73	25 17 28.3	*0966921	0 52.1	132 42 6.1	6 59 21.7	*52	
13	6 22 3.18	25 16 53.3	*0921477	0 57.0	138 2 9.0	7 0 1.5	*52	
14	6 30 41.93	25 13 50.7	*0873108	1 1.7	143 12 32.9	6 57 13.6	*52	
15	6 39 10.39	25 8 27.4	*0822032	1 6.2	148 13 17.5	6 51 18.3	*52	
16	6 47 27.98	25 0 50.5	*0768456	1 10.6	153 4 29.1	6 42 35.8	*52	
17	6 55 34.28	24 51 7.2	*0712582	1 14.7	157 46 19.5	6 31 26.2	*52	
18	7 3 28.93	24 39 25.2	*0654587	1 18.7	162 19 6.3	6 18 8.5	*50	
19	7 11 11.67	24 25 52.1	*0594639	1 22.5	166 43 9.4	6 3 0.7	*57	
20	7 18 42.27	24 10 35.4	*0532891	1 26.0	170 58 52.1	5 46 19.0	*57	
21	7 26 0.59	23 53 42.7	*0469482	1 29.4	175 6 38.5	5 28 18.5	*58	
22	7 33 6.50	23 35 21.3	*0404532	1 32.5	179 6 54.6	5 9 12.4	*59	
23	7 39 59.91	23 15 38.2	*0338158	1 35.5	183 0 5.8	4 49 12.6	*59	
24	7 46 40.79	22 54 40.7	*0270459	1 38.2	186 46 38.0	4 28 29.8	*60	
25	7 53 9.06	22 32 35.7	*0201526	1 40.7	190 26 56.6	4 7 13.0	*60	
26	7 59 24.71	22 9 30.0	*0131438	1 43.0	194 1 27.0	3 45 30.5	*61	
27	8 5 27.72	21 45 29.9	*0060265	1 45.1	197 30 32.9	3 23 29.1	*61	
28	8 11 18.05	21 20 41.9	*9988080	1 47.0	200 54 37.8	3 1 14.9	*62	
29	8 16 55.67	20 55 12.1	*9914932	1 48.7	204 14 4.1	2 38 53.2	*62	
30	8 22 20.54	20 29 7.1	*9840888	1 50.1	207 29 13.2	2 16 28.5	*63	
31	8 27 32.59	N. 20 2 32.4	*9765991	1 51.4	210 40 25.6	N. 1 54 4.7	9.63	

JULY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right cension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
7 32.59	N.20 2 32.4	9.9765991	1 51.4	210 40 25.6	N.1 54 4.7	9.6381895
2 31.75	19 35 34.1	9.9690299	1 52.4	213 48 0.8	1 31 45.2	9.6421090
7 17.91	19 8 18.2	9.9613858	1 53.2	216 52 17.7	1 9 32.8	9.6457598
1 50.96	18 40 50.8	9.9536717	1 53.8	219 53 34.3	0 47 30.3	9.6491419
6 10.73	18 13 17.0	9.9458929	1 54.2	222 52 7.5	0 25 39.4	9.6522554
0 17.07	17 45 43.5	9.9380559	1 54.3	225 48 13.4	N.0 4 2.4	9.6551009
4 9.77	17 18 15.7	9.9301660	1 54.2	228 42 8.2	S.0 17 19.1	9.6576793
7 48.61	16 50 59.6	9.9222311	1 53.9	231 34 6.7	0 38 23.6	9.6599916
1 13.27	16 24 1.5	9.9142597	1 53.4	234 24 23.5	0 59 10.0	9.6620388
4 23.49	15 57 27.4	9.9062586	1 52.6	237 13 12.6	1 19 36.7	9.6638215
7 18.96	15 31 23.8	9.8982408	1 51.5	240 0 47.8	1 39 42.7	9.6653412
9 59.31	15 5 56.7	9.8902181	1 50.3	242 47 22.1	1 59 27.1	9.6665987
2 24.15	14 41 13.3	9.8822050	1 48.7	245 33 8.6	2 18 48.5	9.6675943
4 33.09	14 17 20.1	9.8742172	1 46.9	248 18 20.2	2 37 46.2	9.6683291
6 25.71	13 54 24.0	9.8662749	1 44.8	251 3 8.9	2 56 19.0	9.6688035
8 1.62	13 32 32.4	9.8583989	1 42.5	253 47 47.5	3 14 25.7	9.6690178
9 20.35	13 11 52.4	9.8506157	1 39.8	256 32 27.9	3 32 5.3	9.6689721
0 21.50	12 52 31.6	9.8429532	1 36.9	259 17 22.5	3 49 16.6	9.6686661
1 4.69	12 34 37.5	9.8354444	1 33.7	262 2 43.5	4 5 58.3	9.6681002
1 29.59	12 18 17.8	9.8281262	1 30.1	264 48 43.1	4 22 9.0	9.6672739
1 35.92	12 3 39.8	9.8210395	1 26.3	267 35 33.9	4 37 47.3	9.6661862
1 23.49	11 50 51.1	9.8142314	1 22.1	270 23 28.2	4 52 51.3	9.6648365
0 52.21	11 39 58.8	9.8077503	1 17.6	273 12 38.8	5 7 19.3	9.6632246
0 2.19	11 31 9.2	9.8016532	1 12.9	276 3 18.8	5 21 9.4	9.6613491
8 53.65	11 24 28.8	9.7959984	1 7.8	278 55 41.5	5 34 19.3	9.6592089
7 27.05	11 20 2.4	9.7908490	1 2.4	281 50 0.7	5 46 46.5	9.6568033
5 43.09	11 17 54.2	9.7862728	0 56.8	284 46 30.4	5 58 28.4	9.6541313
3 42.77	11 18 6.7	9.7823347	0 50.8	287 45 25.3	6 9 22.1	9.6511916
1 27.35	11 20 41.2	9.7791057	0 44.6	290 47 0.3	6 19 24.1	9.6479841
8 58.47	11 25 37.0	9.7766526	0 38.2	293 51 31.1	6 28 30.9	9.6445078
6 18.02	11 32 50.9	9.7750394	0 31.6	296 59 13.9	6 36 38.7	9.6407627
3 28.30	N.11 42 18.4	9.7743252	0 24.9	300 10 25.5	S.6 43 43.0	9.6367492

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No.	
1	^h 9 ^m 3 ^s 28'30	[°] N.11 ['] 42 ["] 18'4	9'7743252	^h 0 ^m 24'9	[°] 300 10 ['] 25'5	[°] S. 6 43 43'0	9'636	
2	9 0 31'85	11 53 52'2	'7745631	0 18'0	303 25 23'8	6 49 39'2	'632	
3	8 57 31'61	12 7 22'9	'7757941	0 11'1	306 44 26'6	6 54 21'8	'627	
4	8 54 30'60	12 22 38'9	'7780483	^h { ^m 23 ^s 50'5	310 7 53'1	6 57 45'2	'623	
5	8 51 32'13	12 39 26'7	'7813444	23 50'5	313 36 3'0	6 59 43'4	'618	
6	8 48 39'53	12 57 31'6	'7856860	23 43'9	317 9 16'3	7 0 9'8	'612	
7	8 45 56'20	13 16 37'2	'7910608	23 37'4	320 47 54'6	6 58 57'2	'607	
8	8 43 25'47	13 36 26'0	'7974429	23 31'3	324 32 19'1	6 55 58'0	'601	
9	8 41 10'49	13 56 40'9	'8047929	23 25'4	328 22 51'8	6 51 4'1	'595	
10	8 39 14'25	14 17 4'1	'8130584	23 19'9	332 19 55'2	6 44 7'3	'589	
11	8 37 39'44	14 37 17'7	'8221751	23 14'8	336 23 52'2	6 34 59'0	'582	
12	8 36 28'46	14 57 4'9	'8320706	23 10'1	340 35 4'8	6 23 30'3	'576	
13	8 35 43'35	15 16 9'0	'8426645	23 5'9	344 53 54'8	6 9 32'7	'569	
14	8 35 25'78	15 34 14'4	'8538726	23 2'1	349 20 44'1	5 52 57'9	'562	
15	8 35 37'11	15 51 5'8	'8656056	22 58'8	353 55 50'6	5 33 38'6	'555	
16	8 36 18'29	16 6 29'1	'8777737	22 56'1	358 39 33'3	5 11 28'3	'548	
17	8 37 29'95	16 20 11'3	'8902870	22 53'8	3 32 6'0	4 46 22'1	'541	
18	8 39 12'37	16 31 59'1	'9030563	22 52'1	8 33 39'5	4 18 18'4	'534	
19	8 41 25'49	16 41 41'0	'9159933	22 50'8	13 44 19'9	3 47 17'3	'528	
20	8 44 9'00	16 49 5'8	'9290135	22 50'1	19 4 7'5	3 13 23'4	'521	
21	8 47 22'27	16 54 3'5	'9420342	22 49'8	24 32 55'6	2 36 45'4	'515	
22	8 51 4'41	16 56 24'6	'9549773	22 50'1	30 10 29'3	1 57 37'5	'509	
23	8 55 14'27	16 56 1'0	'9677681	22 50'7	35 56 24'6	1 16 19'2	'504	
24	8 59 50'43	16 52 45'6	'9803364	22 51'6	41 50 8'2	S. 0 33 16'0	'500	
25	9 4 51'32	16 46 32'8	9'9926177	22 53'1	47 50 55'4	N. 0 11 1'1	'496	
26	9 10 15'11	16 37 18'9	0'0045524	22 54'9	53 57 51'3	0 55 55'6	'492	
27	9 15 59'82	16 25 1'6	'0160874	22 57'0	60 9 50'7	1 40 46'8	'490	
28	9 22 3'34	16 9 40'8	'0271758	22 59'4	66 25 39'5	2 24 51'9	'488	
29	9 28 23'45	15 51 17'9	'0377789	23 2'0	72 43 55'2	3 7 26'6	'487	
30	9 34 57'89	15 29 57'0	'0478651	23 4'9	79 3 10'2	3 47 48'5	'488	
31	9 41 44'43	15 5 43'5	'0574108	23 7'9	85 21 54'0	4 25 18'3	'489	
32	9 48 40'82	N.14 38 45'1	0'0664006	23 11'0	91 38 35'8	N.4 59 21'8	9'491	

SEPTEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
48 40'82	N. 14 38 45'1	0'0664006	23 11'0	91 38 35'8	N. 4 59 21'8	9'4910962
55 44'97	14 9 10'4	0'0748258	23 14'2	97 51 48'5	5 29 32'0	9'4938848
2 54'89	13 37 9'6	0'0826858	23 17'5	104 0 10'0	5 55 29'2	9'4974502
10 8'74	13 2 54'0	0'0899858	23 20'9	110 2 26'8	6 17 2'0	9'5017209
17 24'88	12 26 35'0	0'0967360	23 24'2	115 57 35'4	6 34 6'2	9'5066157
24 41'87	11 48 24'4	0'1029517	23 27'6	121 44 43'5	6 46 44'9	9'5120490
31 58'46	11 8 34'3	0'1086519	23 30'9	127 23 10'0	6 55 7'1	9'5179332
39 13'58	10 27 16'3	0'1138575	23 34'1	132 52 25'2	6 59 26'3	9'5241808
46 26'37	9 44 41'6	0'1185912	23 37'4	138 12 10'6	6 59 59'2	9'5307093
53 36'15	9 1 1'1	0'1228772	23 40'5	143 22 16'9	6 57 5'2	9'5374398
0 42'33	8 16 24'7	0'1267397	23 43'7	148 22 43'8	6 51 4'4	9'5443016
7 44'57	7 31 1'6	0'1302022	23 46'7	153 13 37'9	6 42 17'0	9'5512296
14 42'55	6 45 0'6	0'1332884	23 49'6	157 55 11'7	6 31 3'0	9'5581669
21 36'06	5 58 29'4	0'1360200	23 52'5	162 27 42'2	6 17 41'6	9'5650635
28 25'04	5 11 35'2	0'1384187	23 55'3	166 51 29'7	6 2 30'6	9'5718758
35 9'45	4 24 24'5	0'1405044	23 58'0	171 6 57'2	5 45 46'2	9'5785680
41 49'31	3 37 3'1	0'1422949	* *	175 14 29'4	5 27 43'4	9'5851085
48 24'69	2 49 36'1	0'1438081	0 0'7	179 14 31'8	5 8 35'4	9'5914713
54 55'72	2 2 8'5	0'1450590	0 3'3	183 7 30'3	4 48 34'1	9'5976356
1 22'52	1 14 44'4	0'1460619	0 5'8	186 53 50'6	4 27 50'0	9'6035836
7 45'26	N. 0 27 27'8	0'1468298	0 8'2	190 33 58'1	4 6 32'4	9'6093015
14 4'11	S. 0 19 38'1	0'1473747	0 10'6	194 8 17'9	3 44 49'1	9'6147785
20 19'27	1 6 30'0	0'1477063	0 12'9	197 37 14'0	3 22 47'2	9'6200061
26 30'91	1 53 5'3	0'1478344	0 15'2	201 1 9'7	3 0 32'6	9'6249776
32 39'23	2 39 21'0	0'1477667	0 17'4	204 20 27'4	2 38 10'8	9'6296878
38 44'43	3 25 15'3	0'1475111	0 19'5	207 35 28'7	2 15 46'1	9'6341339
44 46'71	4 10 45'8	0'1470731	0 21'6	210 46 33'9	1 53 22'3	9'6383132
50 46'24	4 55 50'6	0'1464581	0 23'7	213 54 2'6	1 31 3'0	9'6422244
56 43'23	5 40 27'9	0'1456711	0 25'7	216 58 13'3	1 8 50'9	9'6458670
2 37'83	6 24 35'9	0'1447155	0 27'6	219 59 24'3	0 46 48'7	9'6492407
8 30'23	S. 7 8 13'1	0'1435946	0 29'6	222 57 52'3	N. 0 24 58'3	9'6523460

OCTOBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Le Rad.	
				Passage.				
	Noon.	Noon.	Noon.		Noon.	Noon.	N	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	13 8 30.23	S. 7 8 13.1	0.1435946	0 29.6	222 57 52.3	N. 0 24 58.3	9.63	
2	13 14 20.56	7 51 17.9	.1423108	0 31.5	225 53 53.5	N. 0 3 21.8	.65	
3	13 20 9.00	8 33 49.0	.1408652	0 33.3	228 47 44.2	S. 0 17 59.2	.65	
4	13 25 55.71	9 15 45.2	.1392597	0 35.2	231 39 39.1	0 39 3.2	.66	
5	13 31 40.79	9 57 4.5	.1374946	0 37.0	234 29 52.8	0 59 48.9	.66	
6	13 37 24.37	10 37 46.2	.1355698	0 38.8	237 18 39.1	1 20 15.0	.66	
7	13 43 6.54	11 17 48.8	.1334844	0 40.5	240 6 11.9	1 40 20.3	.66	
8	13 48 47.43	11 57 11.2	.1312382	0 42.3	242 52 44.5	2 0 4.0	.66	
9	13 54 27.11	12 35 51.9	.1288289	0 44.0	245 38 29.4	2 19 24.7	.66	
10	14 0 5.64	13 13 49.7	.1262545	0 45.7	248 23 39.7	2 38 21.8	.66	
11	14 5 43.07	13 51 3.3	.1235128	0 47.4	251 8 27.8	2 56 53.5	.66	
12	14 11 19.45	14 27 31.6	.1206007	0 49.0	253 53 6.0	3 14 59.3	.66	
13	14 16 54.79	15 3 13.1	.1175141	0 50.7	256 37 46.3	3 32 38.0	.66	
14	14 22 29.07	15 38 6.3	.1142499	0 52.3	259 22 41.5	3 49 48.5	.66	
15	14 28 2.33	16 12 10.1	.1108029	0 53.9	262 8 3.2	4 6 29.2	.66	
16	14 33 34.46	16 45 22.9	.1071686	0 55.5	264 54 4.0	4 22 38.9	.66	
17	14 39 5.41	17 17 43.2	.1033401	0 57.1	267 40 56.4	4 38 16.1	.66	
18	14 44 35.09	17 49 9.5	.0993124	0 58.7	270 28 52.6	4 53 19.0	.66	
19	14 50 3.34	18 19 40.0	.0950785	1 0.2	273 18 5.7	5 7 45.9	.66	
20	14 55 30.01	18 49 13.0	.0906315	1 1.7	276 8 48.5	5 21 34.8	.66	
21	15 0 54.91	19 17 47.1	.0859635	1 3.2	279 1 14.7	5 34 43.3	.65	
22	15 6 17.73	19 45 19.9	.0810664	1 4.6	281 55 37.5	5 47 9.2	.65	
23	15 11 38.22	20 11 49.8	.0759309	1 6.0	284 52 11.5	5 58 49.6	.65	
24	15 16 55.99	20 37 14.6	.0705483	1 7.4	287 51 10.9	6 9 41.7	.65	
25	15 22 10.64	21 1 31.9	.0649089	1 8.7	290 52 50.9	6 19 42.1	.64	
26	15 27 21.67	21 24 39.6	.0590025	1 9.9	293 57 27.4	6 28 47.1	.64	
27	15 32 28.49	21 46 35.0	.0528186	1 11.1	297 5 16.4	6 36 53.0	.64	
28	15 37 30.47	22 7 15.7	.0463468	1 12.1	300 16 34.9	6 43 55.2	.63	
29	15 42 26.81	22 26 38.9	.0395760	1 13.1	303 31 40.3	6 49 49.2	.63	
30	15 47 16.68	22 44 41.4	.0324956	1 14.0	306 50 51.2	6 54 29.4	.62	
31	15 51 59.07	23 1 20.2	.0250960	1 14.8	310 14 26.2	6 57 50.3	.62	
32	15 56 32.82	S. 23 16 31.6	0.0173674	1 15.4	313 42 45.1	S. 6 59 45.7	9.61	

MERCURY.

277

NOVEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	15 56 32.82	S. 23 16 31.6	0.0173674	1 15.4	313 42 45.1	S. 6 59 45.7	9.6178834
2	16 0 56.69	23 30 12.1	.0093021	1 15.8	317 16 8.1	7 0 9.1	.6125524
3	16 5 9.17	23 42 17.4	0.0008927	1 16.1	320 54 57.0	6 58 53.3	.6069752
4	16 9 8.64	23 52 43.3	.99921363	1 16.1	324 39 32.5	6 55 50.6	.6011610
5	16 12 53.24	24 1 24.7	.9830323	1 15.9	328 30 16.9	6 50 53.0	.5951223
6	16 16 20.94	24 8 16.7	.9733850	1 15.4	332 27 33.0	6 43 52.2	.5888745
7	16 19 29.41	24 13 13.0	.9638054	1 14.6	336 31 43.1	6 34 39.6	.5824361
8	16 22 16.17	24 16 7.1	.9537119	1 13.4	340 43 9.4	6 23 6.5	.5758300
9	16 24 38.51	24 16 52.0	.9433340	1 11.8	345 2 14.2	6 9 4.1	.5690842
10	16 26 33.53	24 15 19.4	.9327137	1 9.8	349 29 18.3	5 52 24.3	.5622327
11	16 27 58.17	24 11 20.6	.9219102	1 7.2	354 4 41.1	5 32 59.7	.5553137
12	16 28 49.35	24 4 46.1	.9110006	1 4.1	358 48 39.5	5 10 44.0	.5483740
13	16 29 4.05	23 55 25.8	.9000869	1 0.4	3 41 28.9	4 45 32.6	.5414661
14	16 28 39.51	23 43 9.7	.8892975	0 56.0	8 43 19.5	4 17 23.1	.5346500
15	16 27 33.47	23 27 47.8	.8787883	0 51.0	13 54 16.9	3 46 16.6	.5279938
16	16 25 44.39	23 9 12.3	.8687487	0 45.2	19 14 21.3	3 12 17.4	.5215711
17	16 23 11.92	22 47 17.8	.8593961	0 38.8	24 43 25.8	2 35 34.5	.5154626
18	16 19 57.11	22 22 4.8	.8509689	0 31.6	30 21 15.5	1 56 22.2	.5097530
19	16 16 2.87	21 53 40.7	.8437233	0 23.8	36 7 26.0	1 15 0.3	.5045303
20	16 11 34.05	21 22 21.9	.8379132	0 15.4	42 1 23.5	S. 0 31 54.3	.4998821
21	16 6 37.64	20 48 37.7	.8337734	{ ⁰ ₂₂ ^{57.6} _{57.4} }	48 2 22.9	N. 0 12 24.5	.4958921
22	16 1 22.40	20 13 8.5	.8314956	23 48.1	54 9 29.4	0 57 19.5	.4926381
23	15 55 58.55	19 36 46.8	.8312094	23 38.8	60 21 37.1	1 42 9.9	.4901864
24	15 50 37.00	19 0 32.9	.8329647	23 29.8	66 37 31.7	2 26 12.9	.4885901
25	15 45 28.55	18 25 31.5	.8367255	23 21.2	72 55 50.5	3 8 44.1	.4878843
26	15 40 43.10	17 52 45.6	.8423723	23 13.0	79 15 6.1	3 49 1.2	.4880843
27	15 36 28.97	17 23 10.5	.8497148	23 5.5	85 33 47.6	4 26 25.1	.4891865
28	15 32 52.54	16 57 31.3	.8585123	22 58.6	91 50 24.5	5 0 21.8	.4911655
29	15 29 58.07	16 36 19.0	.8684962	22 52.5	98 3 29.2	5 30 24.3	.4939784
30	15 27 47.82	16 19 50.2	.8793920	22 47.2	104 11 40.7	5 56 13.6	.4975665
31	15 26 22.27	S. 16 8 9.2	.8909358	22 42.5	110 13 45.3	N. 6 17 38.0	9.5018572

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. d Rad. Vel.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	15 26 22.27	S. 16 8 9.2	.98909358	22 42.5	110 13 45.3	N. 6 17 38.0	.9501857
2	15 25 40.53	16 1 9.2	.9028902	22 38.6	116 8 40.1	6 34 33.8	.5067698
3	15 25 40.68	15 58 34.8	.9150469	22 35.2	121 55 32.6	6 47 4.3	.5122188
4	15 26 20.13	16 0 5.4	.9272324	22 32.5	127 33 42.4	6 55 18.8	.5181146
5	15 27 35.88	16 5 17.0	.9393070	22 30.4	133 2 40.4	6 59 30.6	.5243723
6	15 29 24.83	16 13 43.9	.9511626	22 28.7	138 22 8.3	6 59 57.0	.5309070
7	15 31 43.82	16 25 0.3	.9627161	22 27.5	143 31 56.5	6 56 56.8	.5376433
8	15 34 29.87	16 38 41.1	.9739095	22 26.7	148 32 5.8	6 50 50.4	.5445083
9	15 37 40.15	16 54 23.0	.9847023	22 26.3	153 22 42.4	6 41 58.1	.5514376
10	15 41 12.11	17 11 44.3	.9950692	22 26.2	158 3 59.2	6 30 40.0	.5583742
11	15 45 3.41	17 30 25.0	.0049968	22 26.4	162 36 13.0	6 17 14.9	.5652690
12	15 49 11.93	17 50 7.6	.0144809	22 26.8	166 59 44.8	6 2 0.6	.5720783
13	15 53 35.84	18 10 35.7	.0235242	22 27.5	171 14 57.5	5 45 13.5	.5787667
14	15 58 13.49	18 31 35.5	.0321334	22 28.4	175 22 15.5	5 27 8.5	.5853023
15	16 3 3.46	18 52 54.5	.0403188	22 29.4	179 22 4.5	5 7 58.6	.5916593
16	16 8 4.48	19 14 21.5	.0480941	22 30.6	183 14 50.2	4 47 55.8	.5978173
17	16 13 15.46	19 35 46.7	.0554737	22 32.0	187 0 58.5	4 27 10.6	.6037589
18	16 18 35.44	19 57 1.8	.0624725	22 33.5	190 40 55.1	4 5 52.0	.6094693
19	16 24 3.57	20 17 58.5	.0691067	22 35.2	194 15 4.5	3 44 8.0	.6149397
20	16 29 39.12	20 38 30.3	.0753911	22 36.9	197 43 50.8	3 22 5.7	.6201598
21	16 35 21.45	20 58 31.5	.0813414	22 38.8	201 7 37.6	2 59 50.9	.6251233
22	16 41 10.01	21 17 56.8	.0869725	22 40.8	204 26 47.2	2 37 28.9	.6298261
23	16 47 4.29	21 36 41.1	.0922981	22 42.8	207 41 40.8	2 15 4.1	.6342642
24	16 53 3.84	21 54 40.4	.0973322	22 44.9	210 52 38.9	1 52 40.4	.6384359
25	16 59 8.32	22 11 50.8	.1020875	22 47.2	214 0 1.1	1 30 21.3	.6423393
26	17 5 17.34	22 28 9.0	.1065759	22 49.4	217 4 6.1	1 8 9.5	.6459740
27	17 11 30.61	22 43 31.7	.1108089	22 51.8	220 5 11.8	0 46 7.6	.6493399
28	17 17 47.87	22 57 56.2	.1147964	22 54.2	223 3 34.9	0 24 17.7	.6524371
29	17 24 8.85	23 11 19.9	.1185491	22 56.6	225 59 32.0	N. 0 2 41.6	.6552667
30	17 30 33.32	23 23 40.3	.1220754	22 59.2	228 53 18.8	S. 0 18 38.9	.6578291
31	17 37 1.11	S. 23 34 55.3	.1253841	23 1.7	231 45 10.3	S. 0 39 42.3	.956601256

JANUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	h m s	° ' "		h m	° ' "	° ' "	
1	17 37 42.35	S. 23 2 44.9	0.2095644	22 56.5	243 13 34.9	N. 0 42 13.0	9.8605187
2	17 43 9.29	23 7 48.9	.2103102	22 58.0	244 49 1.0	0 36 40.1	.8605942
3	17 48 36.66	23 12 10.4	.2110442	22 59.6	246 24 24.9	0 31 5.6	.8606687
4	17 54 4.38	23 15 49.1	.2117665	23 1.1	247 59 46.7	0 25 29.8	.8607421
5	17 59 32.39	23 18 45.1	.2124772	23 2.6	249 35 6.5	0 19 52.9	.8608144
6	18 5 0.62	23 20 58.1	.2131762	23 4.1	251 10 24.2	0 14 15.2	.8608856
7	18 10 29.02	23 22 28.0	.2138636	23 5.6	252 45 40.0	0 8 37.0	.8609555
8	18 15 57.51	23 23 14.6	.2145394	23 7.2	254 20 54.0	N. 0 2 58.5	.8610242
9	18 21 26.04	23 23 17.9	.2152036	23 8.7	255 56 6.1	S. 0 2 40.0	.8610915
10	18 26 54.54	23 23 37.7	.2158564	23 10.2	257 31 16.4	0 8 18.3	.8611575
11	18 32 22.94	23 21 14.2	.2164976	23 11.7	259 6 25.2	0 13 56.1	.8612220
12	18 37 51.19	23 19 7.4	.2171275	23 13.3	260 41 32.3	0 19 33.2	.8612851
13	18 43 19.23	23 16 17.4	.2177462	23 14.8	262 16 37.9	0 25 9.3	.8613467
14	18 48 46.97	23 12 44.2	.2183536	23 16.4	263 51 42.1	0 30 44.2	.8614067
15	18 54 14.38	23 8 28.0	.2189500	23 17.9	265 26 44.8	0 36 17.5	.8614651
16	18 59 41.39	23 3 29.0	.2195355	23 19.4	267 1 46.2	0 41 49.1	.8615218
17	19 5 7.94	22 57 47.4	.2201101	23 20.9	268 36 46.3	0 47 18.6	.8615768
18	19 10 33.97	22 51 23.3	.2206739	23 22.4	270 11 45.3	0 52 45.9	.8616301
19	19 15 59.42	22 44 17.1	.2212270	23 23.9	271 46 43.2	0 58 10.8	.8616816
20	19 21 24.27	22 36 29.0	.2217695	23 25.3	273 21 40.1	1 3 32.9	.8617313
21	19 26 48.43	22 27 59.5	.2223016	23 26.8	274 56 36.0	1 8 52.0	.8617791
22	19 32 11.87	22 18 48.8	.2228234	23 28.2	276 31 31.2	1 14 7.9	.8618250
23	19 37 34.55	22 8 57.4	.2233348	23 29.6	278 6 25.4	1 19 20.4	.8618690
24	19 42 56.42	21 58 25.6	.2238359	23 31.0	279 41 18.9	1 24 29.2	.8619111
25	19 48 17.43	21 47 13.8	.2243268	23 32.4	281 16 11.8	1 29 34.1	.8619511
26	19 53 37.55	21 35 22.6	.2248074	23 33.8	282 51 4.1	1 34 34.8	.8619891
27	19 58 56.73	21 22 52.5	.2252777	23 35.2	284 25 55.9	1 39 31.1	.8620250
28	20 4 14.95	21 9 43.9	.2257377	23 36.5	286 0 47.3	1 44 22.9	.8620588
29	20 9 32.17	20 55 57.3	.2261875	23 37.8	287 35 38.3	1 49 9.9	.8620906
30	20 14 48.36	20 41 33.2	.2266271	23 39.1	289 10 29.1	1 53 51.8	.8621203
31	20 20 3.50	20 26 32.5	.2270564	23 40.4	290 45 19.5	1 58 28.5	.8621478
32	20 25 17.55	S. 20 10 55.4	0.2274752	23 41.7	292 20 9.8	S. 2 2 59.8	9.8621732

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			Days of the Month.
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. d Rad. Vel.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	20 25 17.55	S. 20 10 55.4	0.2274752	23 41.7	292 20 9.8	S. 2 2 59.8	9.862172	1
2	20 30 30.49	19 54 42.8	.2278836	23 43.0	293 54 59.9	2 7 25.4	.862196	2
3	20 35 42.31	19 37 55.0	.2282813	23 44.2	295 29 50.0	2 11 45.2	.862217	3
4	20 40 52.98	19 20 32.9	.2286685	23 45.4	297 4 40.1	2 15 59.0	.862236	4
5	20 46 2.48	19 2 37.0	.2290451	23 46.6	298 39 30.2	2 20 6.5	.862252	5
6	20 51 10.79	18 44 8.1	.2294111	23 47.8	300 14 20.4	2 24 7.6	.862267	6
7	20 56 17.92	18 25 6.7	.2297664	23 49.0	301 49 10.9	2 28 2.1	.862279	
8	21 1 23.84	18 5 33.7	.2301110	23 50.1	303 24 1.7	2 31 49.9	.862288	
9	21 6 28.55	17 45 29.7	.2304449	23 51.2	304 58 52.8	2 35 30.7	.862296	
10	21 11 32.04	17 24 55.5	.2307682	23 52.3	306 33 44.2	2 39 4.4	.862301	
11	21 16 34.31	17 3 51.7	.2310807	23 53.4	308 8 36.1	2 42 30.8	.862304	
12	21 21 35.34	16 42 19.2	.2313825	23 54.5	309 43 28.5	2 45 49.8	.862305	
13	21 26 35.16	16 20 18.5	.2316737	23 55.5	311 18 21.4	2 49 1.3	.862303	
14	21 31 33.76	15 57 50.5	.2319544	23 56.5	312 53 14.9	2 52 5.0	.862299	
15	21 36 31.16	15 34 55.9	.2322245	23 57.5	314 28 8.9	2 55 0.9	.862293	
16	21 41 27.36	15 11 35.5	.2324842	23 58.5	316 3 3.7	2 57 48.8	.862284	
17	21 46 22.36	14 47 50.1	.2327336	23 59.4	317 37 59.2	3 0 28.6	.862273	
18	21 51 16.20	14 23 40.4	.2329727	* *	319 12 55.5	3 3 0.2	.862260	
19	21 56 8.89	13 59 7.2	.2332015	0 0.3	320 47 52.6	3 5 23.4	.862245	
20	22 1 0.44	13 34 11.2	.2334199	0 1.3	322 22 50.5	3 7 38.2	.862228	
21	22 5 50.88	13 8 53.2	.2336281	0 2.2	323 57 49.2	3 9 44.5	.862208	
22	22 10 40.24	12 43 14.0	.2338259	0 3.1	325 32 49.0	3 11 42.1	.862186	
23	22 15 28.53	12 17 14.2	.2340133	0 4.0	327 7 49.7	3 13 30.9	.862162	
24	22 20 15.79	11 50 54.7	.2341905	0 4.8	328 42 51.3	3 15 10.9	.862136	
25	22 25 2.04	11 24 16.2	.2343573	0 5.6	330 17 54.0	3 16 42.0	.862107	
26	22 29 47.30	10 57 19.4	.2345136	0 6.4	331 52 57.8	3 18 4.1	.862076	
27	22 34 31.62	10 30 5.0	.2346596	0 7.2	333 28 2.6	3 19 17.1	.862044	
28	22 39 15.02	10 2 34.0	.2347950	0 8.0	335 3 8.6	3 20 21.0	.862009	
29	22 43 57.53	S. 9 34 47.1	0.2349197	0 8.8	336 38 15.7	S. 3 21 15.7	9.861972	25

VENUS.

281

MARCH, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	h m s	° ' "		h m	° ' "	° ' "		
1	22 43 57.53	S. 9 34 47.1	0.2349197	0 8.8	336 38 15.7	S. 3 21 15.7	9.8619725	
2	22 48 39.18	9 6 44.9	.2350336	0 9.5	338 13 23.9	3 22 1.2	.8619336	
3	22 53 20.01	8 38 28.3	.2351367	0 10.2	339 48 33.4	3 22 37.5	.8618927	
4	22 58 0.06	8 9 57.9	.2352288	0 10.9	341 23 44.0	3 23 4.4	.8618498	
5	23 2 39.35	7 41 14.6	.2353098	0 11.6	342 58 55.8	3 23 22.0	.8618050	
6	23 7 17.93	7 12 19.0	.2353795	0 12.3	344 34 8.9	3 23 30.3	.8617582	
7	23 11 55.83	6 43 11.9	.2354380	0 13.0	346 9 23.2	3 23 29.2	.8617095	
8	23 16 33.08	6 13 54.0	.2354852	0 13.7	347 44 38.8	3 23 18.8	.8616590	
9	23 21 9.72	5 44 26.1	.2355209	0 14.4	349 19 55.7	3 22 59.0	.8616067	
10	23 25 45.80	5 14 49.1	.2355450	0 15.1	350 55 13.8	3 22 30.0	.8615526	
11	23 30 21.34	4 45 3.6	.2355574	0 15.8	352 30 33.4	3 21 51.6	.8614968	
12	23 34 56.39	4 15 10.4	.2355582	0 16.4	354 5 54.3	3 21 3.9	.8614393	
13	23 39 30.98	3 45 10.3	.2355473	0 17.0	355 41 16.5	3 20 6.9	.8613802	
14	23 44 5.15	3 15 4.0	.2355246	0 17.6	357 16 40.2	3 19 0.7	.8613195	
15	23 48 38.93	2 44 52.2	.2354901	0 18.2	358 52 5.2	3 17 45.3	.8612572	
16	23 53 12.39	2 14 35.7	.2354439	0 18.8	0 27 31.7	3 16 20.7	.8611935	
17	23 57 45.54	1 44 15.2	.2353859	0 19.4	2 2 59.6	3 14 47.1	.8611283	
18	0 2 18.44	1 13 51.5	.2353160	0 20.0	3 38 29.0	3 13 4.4	.8610617	
19	0 6 51.12	0 43 25.2	.2352345	0 20.6	5 13 59.7	3 11 12.8	.8609937	
20	0 11 23.64	S. 0 12 57.1	.2351412	0 21.2	6 49 32.0	3 9 12.3	.8609244	
21	0 15 56.03	N. 0 17 32.0	.2350360	0 21.8	8 25 5.8	3 7 3.0	.8608539	
22	0 20 28.34	0 48 1.5	.2349190	0 22.4	10 0 40.9	3 4 45.0	.8607822	
23	0 25 0.61	1 18 30.6	.2347902	0 23.0	11 36 17.6	3 2 18.4	.8607094	
24	0 29 32.88	1 48 58.6	.2346494	0 23.6	13 11 55.7	2 59 43.3	.8606354	
25	0 34 5.20	2 19 24.7	.2344966	0 24.2	14 47 35.4	2 56 59.8	.8605604	
26	0 38 37.61	2 49 48.3	.2343318	0 24.8	16 23 16.5	2 54 8.0	.8604845	
27	0 43 10.16	3 20 8.7	.2341550	0 25.4	17 58 59.2	2 51 8.1	.8604076	
28	0 47 42.90	3 50 25.1	.2339659	0 26.0	19 34 43.5	2 48 0.1	.8603299	
29	0 52 15.86	4 20 36.7	.2337644	0 26.6	21 10 29.2	2 44 44.3	.8602514	
30	0 56 49.08	4 50 42.9	.2335505	0 27.3	22 46 16.6	2 41 20.8	.8601721	
31	1 1 22.62	5 20 43.1	.2333240	0 27.9	24 22 5.5	2 37 49.7	.8600922	
32	1 5 56.51	N. 5 50 36.5	0.2330849	0 28.6	25 57 56.0	S. 2 34 11.1	9.8600116	

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	R.
	Noon.	Noon.	Noon.		Noon.	Noon.	
1	h m s 1 5 56.51	N. 5 50 36.5	0.2330849	0 28.6	25 57 56.0	S. 2 34 11.1	9.8
2	1 10 30.80	6 20 22.2	.2328328	0 29.2	27 33 48.2	2 30 25.3	9.8
3	1 15 5.52	6 49 59.7	.2325677	0 29.8	29 9 41.8	2 26 32.5	9.8
4	1 19 40.72	7 19 28.1	.2322895	0 30.4	30 45 37.1	2 22 32.7	9.8
5	1 24 16.42	7 48 46.8	.2319979	0 31.1	32 21 34.1	2 18 26.2	9.8
6	1 28 52.67	8 17 54.9	.2316929	0 31.7	33 57 32.6	2 14 13.1	9.8
7	1 33 29.51	8 46 51.7	.2313742	0 32.4	35 33 32.8	2 9 53.6	9.8
8	1 38 6.96	9 15 36.5	.2310418	0 33.1	37 9 34.7	2 5 27.9	9.8
9	1 42 45.07	9 44 8.7	.2306955	0 33.8	38 45 38.2	2 0 56.3	9.8
10	1 47 23.87	10 12 27.4	.2303352	0 34.5	40 21 43.4	1 56 18.9	9.8
11	1 52 3.39	10 40 31.7	.2299609	0 35.2	41 57 50.2	1 51 35.9	9.8
12	1 56 43.66	11 8 21.0	.2295724	0 35.9	43 33 58.8	1 46 47.6	9.8
13	2 1 24.72	11 35 54.4	.2291700	0 36.7	45 10 9.1	1 41 54.1	9.8
14	2 6 6.59	12 3 11.3	.2287533	0 37.4	46 46 21.1	1 36 55.8	9.8
15	2 10 49.30	12 30 10.8	.2283224	0 38.2	48 22 34.7	1 31 52.8	9.8
16	2 15 32.89	12 56 52.3	.2278771	0 39.0	49 58 50.1	1 26 45.4	9.8
17	2 20 17.36	13 23 15.0	.2274175	0 39.8	51 35 7.3	1 21 33.8	9.8
18	2 25 2.75	13 49 18.1	.2269435	0 40.6	53 11 26.2	1 16 18.2	9.8
19	2 29 49.09	14 15 0.9	.2264551	0 41.4	54 47 46.8	1 10 58.9	9.8
20	2 34 36.40	14 40 22.6	.2259524	0 42.2	56 24 9.2	1 5 36.2	9.8
21	2 39 24.71	15 5 22.4	.2254352	0 43.1	58 0 33.4	1 0 10.2	9.8
22	2 44 14.03	15 29 59.8	.2249034	0 44.0	59 36 59.4	0 54 41.3	9.8
23	2 49 4.39	15 54 13.8	.2243571	0 44.9	61 13 27.1	0 49 9.7	9.8
24	2 53 55.82	16 18 3.8	.2237962	0 45.8	62 49 56.6	0 43 35.6	9.8
25	2 58 48.31	16 41 29.1	.2232206	0 46.8	64 26 27.9	0 37 59.4	9.8
26	3 3 41.89	17 4 28.8	.2226302	0 47.7	66 3 1.1	0 32 21.3	9.8
27	3 8 36.56	17 27 2.3	.2220249	0 48.7	67 39 36.1	0 26 41.5	9.8
28	3 13 32.35	17 49 8.9	.2214046	0 49.7	69 16 12.9	0 21 0.3	9.8
29	3 18 29.25	18 10 47.8	.2207691	0 50.7	70 52 51.5	0 15 18.0	9.8
30	3 23 27.28	18 31 58.3	.2201183	0 51.7	72 29 31.9	0 9 34.9	9.8
31	3 28 26.43	N. 18 52 39.7	0.2194519	0 52.8	74 6 14.1	S. 0 3 51.2	9.8

MAY, 1834.

MEAN TIME.

Geocentric.					Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.		Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.			Noon.	Noon.	Noon.
h m s	° ' "		h m		° ' "	° ' "	
1	3 28 26.43	N.18 52 39.7	0.2194519	0 52.8	74 6 14.1	S.0 3 51.2	9.8576270
2	3 33 26.71	19 12 51.3	.2187699	0 53.8	75 42 58.1	N.0 1 52.8	.8575591
3	3 38 28.11	19 32 32.4	.2180720	0 54.9	77 19 44.0	0 7 36.8	.8574925
4	3 43 30.64	19 51 42.2	.2173581	0 56.0	78 56 31.6	0 13 20.6	.8574274
5	3 48 34.27	20 10 20.2	.2166282	0 57.1	80 33 21.1	0 19 3.8	.8573637
6	3 53 39.01	20 28 25.7	.2158819	0 58.2	82 10 12.4	0 24 46.2	.8573016
7	3 58 44.84	20 45 57.9	.2151192	0 59.4	83 47 5.4	0 30 27.5	.8572411
8	4 3 51.74	21 2 56.2	.2143400	1 0.6	85 24 0.2	0 36 7.5	.8571823
9	4 8 59.69	21 19 20.0	.2135441	1 1.8	87 0 56.7	0 41 45.8	.8571251
10	4 14 8.67	21 35 8.5	.2127313	1 3.0	88 37 55.0	0 47 22.2	.8570696
11	4 19 18.64	21 50 21.2	.2119017	1 4.2	90 14 55.0	0 52 56.5	.8570160
12	4 24 29.58	22 4 57.5	.2110553	1 5.4	91 51 56.7	0 58 28.3	.8569642
13	4 29 41.47	22 18 56.8	.2101918	1 6.7	93 29 0.1	1 3 57.4	.8569143
14	4 34 54.27	22 32 18.7	.2093112	1 7.9	95 6 5.1	1 9 23.5	.8568663
15	4 40 7.94	22 45 2.5	.2084136	1 9.2	96 43 11.9	1 14 46.3	.8568202
16	4 45 22.44	22 57 7.6	.2074989	1 10.5	98 20 20.2	1 20 5.6	.8567761
17	4 50 37.74	23 8 33.7	.2065671	1 11.8	99 57 30.1	1 25 21.2	.8567340
18	4 55 53.79	23 19 20.1	.2056181	1 13.1	101 34 41.6	1 30 32.7	.8566940
19	5 1 10.56	23 29 26.5	.2046520	1 14.5	103 11 54.5	1 35 40.0	.8566561
20	5 6 27.99	23 38 52.4	.2036685	1 15.8	104 49 8.9	1 40 42.7	.8566203
21	5 11 46.04	23 47 37.6	.2026678	1 17.2	106 26 24.7	1 45 40.6	.8565866
22	5 17 4.65	23 55 41.6	.2016498	1 18.6	108 3 42.0	1 50 33.5	.8565551
23	5 22 23.79	24 3 4.2	.2006145	1 20.0	109 41 0.6	1 55 21.1	.8565259
24	5 27 43.40	24 9 45.0	.1995618	1 21.4	111 18 20.5	2 0 3.2	.8564989
25	5 33 3.43	24 15 43.6	.1984918	1 22.7	112 55 41.7	2 4 39.6	.8564741
26	5 38 23.82	24 20 59.8	.1974044	1 24.1	114 33 4.0	2 9 10.0	.8564517
27	5 43 44.51	24 25 33.4	.1962994	1 25.5	116 10 27.4	2 13 34.2	.8564315
28	5 49 5.45	24 29 24.2	.1951766	1 26.9	117 47 51.9	2 17 52.1	.8564136
29	5 54 26.57	24 32 32.1	.1940360	1 28.4	119 25 17.6	2 22 3.3	.8563980
30	5 59 47.83	24 34 56.9	.1928774	1 29.8	121 2 44.1	2 26 7.7	.8563848
31	6 5 9.15	24 36 38.5	.1917007	1 31.2	122 40 11.5	2 30 5.1	.8563739
32	6 10 30.48	N.24 37 36.9	0.1905057	1 32.6	124.17 39.9	N.2 33 55.2	9.8563653

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of the Semi- Axis.	Meridian Passage.	Longitude.	Latitude.	L. Dist.	
	Hour. Min. Sec.	Hour. Min. Sec.	Hour. Min. Sec.		Hour. Min. Sec.	Hour. Min. Sec.		
1	6 35 30.66	N. 28 27 36.90	1.385057	1 32.6	128 37 29.5	N. 2 22 33.2	9.8	
2	6 35 50.22	28 27 50.9	1.385223	1 34.1	128 35 8.9	2 27 37.9	9.8	
3	6 36 12.73	28 27 28.6	1.385603	1 35.5	127 32 28.6	2 41 37.0	9.8	
4	6 36 39.88	28 26 32.1	1.385897	1 36.9	127 31 9.0	2 55 40.2	9.8	
5	6 37 10.60	28 24 37.3	1.385503	1 38.3	126 47 29.9	2 47 39.9	9.8	
6	6 37 15.01	28 21 39.3	1.385539	1 39.7	126 25 32.4	2 51 32.3	9.8	
7	6 38 30.39	28 28 18.3	1.385562	1 41.1	126 2 43.2	2 52 34.2	9.8	
8	6 37 58.60	28 28 18.4	1.385671	1 42.5	125 40 35.3	2 57 29.1	9.8	
9	6 38 18.72	28 29 27.8	1.385702	1 43.9	127 17 47.8	2 59 53.3	9.8	
10	6 38 32.24	28 33 58.7	1.385956	1 45.2	128 35 20.3	3 2 32.7	9.8	
11	7 3 50.33	28 7 47.4	1.375205	1 46.6	129 32 52.9	3 5 14.4	9.8	
12	7 9 7.84	28 0 54.2	1.376159	1 47.9	129 10 25.6	3 7 20.1	9.8	
13	7 16 23.81	28 53 19.3	1.374693	1 49.2	128 47 58.1	3 9 31.4	9.8	
14	7 23 39.48	28 45 3.2	1.373283	1 50.5	128 25 20.6	3 11 33.3	9.8	
15	7 24 54.30	28 36 6.0	1.3717450	1 51.8	127 3 2.7	3 13 25.6	9.8	
16	7 30 8.21	28 26 28.3	1.3703022	1 53.1	126 40 34.5	3 15 8.5	9.8	
17	7 36 21.17	28 16 18.4	1.368799	1 54.4	125 18 5.9	3 16 42.0	9.8	
18	7 40 33.14	28 5 12.9	1.3672779	1 55.6	124 55 36.7	3 18 6.1	9.8	
19	7 45 44.07	22 53 36.1	1.3657364	1 56.9	123 33 7.0	3 19 20.6	9.8	
20	7 50 53.92	22 41 20.5	1.3641732	1 58.1	123 10 36.5	3 20 25.5	9.8	
21	7 56 2.65	22 28 26.7	1.3625945	1 59.3	122 48 5.2	3 21 20.7	9.8	
22	8 1 10.24	22 14 55.2	1.3609941	2 0.5	122 25 33.2	3 22 6.2	9.8	
23	8 6 16.65	22 0 46.4	1.3593742	2 1.7	120 3 0.1	3 22 42.0	9.8	
24	8 11 21.86	21 46 1.0	1.3577345	2 2.8	121 40 26.1	3 23 8.0	9.8	
25	8 16 25.83	21 30 39.6	1.3560751	2 3.9	123 17 30.8	3 23 24.3	9.8	
26	8 21 28.54	21 14 42.7	1.3543956	2 5.0	124 53 14.4	3 23 30.8	9.8	
27	8 26 29.96	20 58 18.9	1.3526962	2 6.1	126 32 36.6	3 23 27.5	9.8	
28	8 31 30.08	20 41 4.9	1.3509766	2 7.1	128 9 37.5	3 23 14.5	9.8	
29	8 36 28.89	20 23 25.1	1.3492367	2 8.2	129 47 17.1	3 22 51.7	9.8	
30	8 41 26.38	20 5 12.4	1.3474764	2 9.2	127 24 33.0	3 22 19.2	9.8	
31	8 46 22.53	N. 19 46 27.40	1.3456956	2 10.2	123 1 31.3	N. 3 21 37.0	9.8	

JULY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
22° 53'	N. 19 46 27.4	0.1456956	2 10.2	173 1 51.3	N. 3 21 37.0	9.8571675
17° 33'	19 27 10.6	.1438941	2 11.2	174 39 5.8	3 20 45.2	.8572258
10° 77'	19 7 22.8	.1420718	2 12.2	176 16 18.7	3 19 43.8	.8572858
2° 85'	18 47 4.7	.1402284	2 13.1	177 53 29.6	3 18 32.8	.8573474
53° 54'	18 26 17.0	.1383638	2 14.0	179 30 38.6	3 17 12.3	.8574106
42° 87'	18 5 0.4	.1364780	2 14.9	181 7 45.7	3 15 42.5	.8574753
30° 81'	17 43 15.5	.1345707	2 15.8	182 44 50.6	3 14 3.3	.8575415
17° 37'	17 21 3.0	.1326418	2 16.6	184 21 53.5	3 12 14.9	.8576091
2° 56'	16 58 23.7	.1306911	2 17.4	185 58 54.1	3 10 17.3	.8576781
46° 38'	16 35 18.3	.1287186	2 18.2	187 35 52.5	3 8 10.8	.8577483
28° 83'	16 11 47.5	.1267242	2 19.0	189 12 48.7	3 5 55.3	.8578198
9° 93'	15 47 52.2	.1247079	2 19.7	190 49 42.5	3 3 31.1	.8578924
49° 67'	15 23 32.9	.1226694	2 20.4	192 26 33.8	3 0 58.2	.8579661
28° 09'	14 58 50.4	.1206089	2 21.1	194 3 22.8	2 58 16.7	.8580409
5° 19'	14 33 45.7	.1185263	2 21.8	195 40 9.2	2 55 26.8	.8581166
40° 99'	14 8 19.2	.1164215	2 22.4	197 16 53.0	2 52 28.6	.8581933
15° 51'	13 42 31.6	.1142947	2 23.0	198 53 34.2	2 49 22.3	.8582708
48° 76'	13 16 23.8	.1121457	2 23.6	200 30 13.0	2 46 8.1	.8583491
20° 77'	12 49 56.6	.1099745	2 24.2	202 6 49.1	2 42 46.1	.8584281
51° 56'	12 23 10.4	.1077811	2 24.8	203 43 22.5	2 39 16.4	.8585078
21° 15'	11 56 6.3	.1055655	2 25.4	205 19 53.3	2 35 39.3	.8585882
49° 57'	11 28 44.7	.1033277	2 25.9	206 56 21.3	2 31 54.9	.8586692
16° 85'	11 1 6.4	.1010673	2 26.4	208 32 46.6	2 28 3.5	.8587506
43° 02'	10 33 12.0	.0987844	2 26.9	210 9 9.1	2 24 5.2	.8588324
8° 12'	10 5 2.5	.0964789	2 27.4	211 45 28.9	2 20 0.2	.8589146
32° 18'	9 36 38.3	.0941507	2 27.8	213 21 46.0	2 15 48.7	.8589971
55° 23'	9 8 0.2	.0917996	2 28.3	214 58 0.2	2 11 30.9	.8590799
17° 29'	8 39 8.7	.0894254	2 28.7	216 34 11.7	2 7 7.0	.8591628
38° 41'	8 10 4.8	.0870281	2 29.1	218 10 20.4	2 2 37.3	.8592459
58° 61'	7 40 48.8	.0846073	2 29.5	219 46 26.4	1 58 1.9	.8593290
17° 93'	7 11 21.5	.0821629	2 29.9	221 22 29.6	1 53 21.1	.8594121
36° 41'	N. 6 41 43.7	0.0796945	2 30.2	222 58 30.2	N. 1 48 35.1	9.8594951

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.				Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Vel. in A.U.	True Anomaly.
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Vel. in A.U.							
	Hours.	Minutes.						Hours.						
1	11 8 36.40	N. 61 41 47	0.736945	2 31.2	222 54 30.2	N. 48 30.1	0.736945	13 18						
2	11 12 54.07	6 11 36.0	0.772029	2 30.5	224 34 29.0	N. 43 42.2	0.757000	13 22						
3	11 17 10.36	3 41 39.2	0.746451	2 30.9	226 10 27.1	N. 38 48.5	0.757000	13 26						
4	11 21 27.10	5 11 53.9	0.721434	2 31.2	227 45 13.5	N. 33 49.7	0.757000	13 30						
5	11 25 42.51	4 41 49.7	0.695767	2 31.5	229 22 5.0	N. 28 49.9	0.757000	13 34						
6	11 29 57.22	4 11 20.3	0.669846	2 31.8	230 57 52.5	N. 23 35.5	0.757000	13 38						
7	11 34 11.28	3 40 53.5	0.643671	2 32.1	232 33 37.1	N. 18 27.3	0.757000	12 3						
8	11 38 24.72	3 10 29.8	0.617239	2 32.4	234 9 13.1	N. 13 7.5	0.757000	12 3						
9	11 42 37.57	2 39 43.0	0.590549	2 32.7	235 44 58.7	N. 7 48.5	0.757000	12 3						
10	11 46 49.86	2 9 0.7	0.563559	2 33.0	237 20 35.8	N. 2 26.4	0.757000	12 3						
11	11 51 1.60	1 38 14.7	0.536389	2 33.2	238 56 10.5	N. 57 1.6	0.757000	12 3						
12	11 55 12.91	1 7 25.6	0.508916	2 33.5	240 31 42.8	N. 51 34.2	0.757000	12 3						
13	11 59 23.72	0 36 34.0	0.481179	2 33.7	242 7 12.8	N. 45 4.6	0.757000	12 3						
14	12 3 34.11	N. 0 5 40.7	0.453176	2 34.0	243 42 40.5	N. 40 33.0	0.757000	12 3						
15	12 7 44.10	N. 0 25 13.8	0.424905	2 34.2	245 18 6.0	N. 34 59.6	0.757000	12 3						
16	12 11 53.73	0 36 8.7	0.396466	2 34.4	246 53 29.3	N. 29 24.7	0.757000	12 3						
17	12 16 3.03	1 27 3.4	0.367558	2 34.6	248 28 50.6	N. 23 48.5	0.757000	12 3						
18	12 20 12.03	1 57 57.2	0.338478	2 34.8	250 4 9.7	N. 18 11.3	0.757000	12 3						
19	12 24 20.76	2 28 49.5	0.309126	2 35.0	251 39 27.0	N. 12 33.4	0.757000	12 3						
20	12 28 29.27	2 59 39.8	0.279500	2 35.2	253 14 42.3	N. 6 53.0	0.757000	12 3						
21	12 32 37.59	3 30 27.3	0.249597	2 35.4	254 49 55.8	N. 0 16.5	0.757000	12 3						
22	12 36 43.76	4 1 11.4	0.219418	2 35.6	256 25 7.5	S. 0 4 22.0	0.757000	12 3						
23	12 40 53.81	4 31 51.5	0.189957	2 35.8	258 0 17.4	S. 0 10 0.2	0.757000	12 3						
24	12 45 1.77	5 2 27.0	0.159214	2 35.9	259 35 25.7	S. 0 15 37.9	0.757000	12 3						
25	12 49 9.67	5 32 57.3	0.127184	2 36.1	261 10 32.5	S. 0 21 14.7	0.757000	12 3						
26	12 53 17.56	6 3 21.7	0.095865	2 36.3	262 45 37.7	S. 0 26 50.5	0.757000	12 3						
27	12 57 25.45	6 33 39.6	0.064233	2 36.5	264 20 41.5	S. 0 32 24.9	0.757000	12 3						
28	13 1 33.38	7 3 50.4	0.032345	2 36.6	265 55 43.8	S. 0 37 57.8	0.757000	12 3						
29	13 5 41.37	7 33 53.5	0.0000138	2 36.8	267 30 45.2	S. 0 43 28.8	0.757000	12 3						
30	13 9 49.47	8 3 48.4	9.9967627	2 37.0	269 5 44.9	S. 0 48 57.7	0.757000	12 3						
31	13 13 57.70	8 33 34.3	9.994808	2 37.2	270 40 43.6	S. 0 54 24.3	0.757000	12 3						
32	13 18 6.06	S. 9 3 10.6	9.9901673	2 37.4	272 15 41.3	S. 0 59 48.4	9.9901673	12 3						

SEPTEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
h. m. s.	° ' "	Noon.		Noon.	Noon.	Noon.
6 ^h 06 ^m	S. 9 3 10 ^s 6	99901675	2 37 ^m 4	272 15 41 ^s 3	S. 0 59 48 ^s 4	98616902
14 ^h 59 ^m	9 32 36 ^s 6	98682223	2 37 ^m 6	273 50 38 ^s 0	1 5 9 ^s 6	98617392
23 ^h 32 ^m	10 1 51 ^s 9	9834447	2 37 ^m 8	275 25 33 ^s 8	1 10 27 ^s 8	98617864
32 ^h 27 ^m	10 30 55 ^s 6	9800343	2 38 ^m 0	277 0 28 ^s 6	1 15 42 ^s 7	98618317
41 ^h 45 ^m	10 59 47 ^s 2	9765907	2 38 ^m 3	278 35 22 ^s 7	1 20 54 ^s 1	98618750
50 ^h 87 ^m	11 28 25 ^s 9	9731134	2 38 ^m 5	280 10 16 ^s 2	1 26 1 ^s 7	98619164
0 ^h 55 ^m	11 56 51 ^s 1	9696020	2 38 ^m 7	281 45 8 ^s 9	1 31 5 ^s 3	98619558
10 ^h 50 ^m	12 25 2 ^s 2	9660360	2 38 ^m 9	283 20 1 ^s 1	1 36 4 ^s 7	98619931
20 ^h 73 ^m	12 52 58 ^s 6	9624751	2 39 ^m 1	284 54 52 ^s 9	1 40 59 ^s 7	98620284
31 ^h 25 ^m	13 20 39 ^s 7	9588388	2 39 ^m 4	286 29 44 ^s 1	1 45 50 ^s 0	98620616
42 ^h 08 ^m	13 48 4 ^s 5	9552067	2 39 ^m 6	288 4 33 ^s 1	1 50 35 ^s 4	98620927
53 ^h 22 ^m	14 15 12 ^s 6	9515184	2 39 ^m 9	289 39 25 ^s 8	1 55 15 ^s 8	98621217
4 ^h 67 ^m	14 42 3 ^s 4	9477938	2 40 ^m 1	291 14 16 ^s 2	1 59 50 ^s 9	98621485
16 ^h 44 ^m	15 8 36 ^s 1	9440324	2 40 ^m 4	292 49 6 ^s 5	2 4 20 ^s 5	98621732
28 ^h 53 ^m	15 34 50 ^s 1	9402339	2 40 ^m 6	294 23 56 ^s 8	2 8 44 ^s 4	98621957
40 ^h 93 ^m	16 0 44 ^s 9	9363980	2 40 ^m 9	295 58 46 ^s 9	2 13 2 ^s 4	98622159
53 ^h 66 ^m	16 26 19 ^s 7	9325242	2 41 ^m 1	297 33 37 ^s 2	2 17 14 ^s 3	98622340
6 ^h 70 ^m	16 51 34 ^s 1	9286122	2 41 ^m 4	299 8 27 ^s 4	2 21 19 ^s 9	98622498
20 ^h 07 ^m	17 16 27 ^s 4	9246615	2 41 ^m 7	300 43 17 ^s 9	2 25 19 ^s 1	98622633
33 ^h 73 ^m	17 40 59 ^s 0	9206716	2 42 ^m 0	302 18 8 ^s 6	2 29 11 ^s 6	98622746
47 ^h 70 ^m	18 5 8 ^s 4	9166422	2 42 ^m 3	303 52 59 ^s 5	2 32 57 ^s 3	98622837
1 ^h 97 ^m	18 28 55 ^s 0	9125727	2 42 ^m 6	305 27 50 ^s 9	2 36 36 ^s 0	98622905
16 ^h 52 ^m	18 52 18 ^s 2	9084627	2 42 ^m 9	307 2 42 ^s 6	2 40 7 ^s 5	98622950
31 ^h 35 ^m	19 15 17 ^s 3	9043116	2 43 ^m 2	308 37 34 ^s 8	2 43 31 ^s 7	98622972
46 ^h 43 ^m	19 37 51 ^s 9	9001187	2 43 ^m 5	310 12 27 ^s 5	2 46 48 ^s 5	98622972
1 ^h 75 ^m	20 0 1 ^s 5	8958832	2 43 ^m 8	311 47 20 ^s 6	2 49 57 ^s 7	98622949
17 ^h 29 ^m	20 21 45 ^s 5	8916046	2 44 ^m 1	313 22 14 ^s 4	2 52 59 ^s 1	98622903
33 ^h 01 ^m	20 43 3 ^s 6	8872820	2 44 ^m 4	314 57 8 ^s 8	2 55 52 ^s 6	98622834
48 ^h 88 ^m	21 3 55 ^s 0	8829147	2 44 ^m 7	316 32 4 ^s 0	2 58 38 ^s 1	98622743
4 ^h 86 ^m	21 24 19 ^s 3	8785020	2 45 ^m 1	318 6 59 ^s 9	3 1 15 ^s 5	98622629
20 ^h 92 ^m	S. 21 44 16 ^s 0	98740431	2 45 ^m 4	319 41 56 ^s 5	S. 3 3 44 ^s 6	98622492

OCTOBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.				Days of the Month.
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rel. Vel.		
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.		
1	15 24 20.92	21 44 16.09	8740431	2 45.4	319 41 56.5	8.3 3 44.6	9.862219	1 17 30	
2	15 28 37.00	22 3 44.6	8695371	2 45.7	321 15 54.0	3 6 5.3	862213	2 17 30	
3	15 32 53.07	22 22 44.6	8649832	2 46.0	322 51 32.3	3 8 17.5	862213	3 17 30	
4	15 37 9.06	22 41 15.4	8603806	2 46.4	324 25 51.5	3 10 21.1	862194	4 17 30	
5	15 41 24.92	22 59 16.7	8557284	2 46.7	326 1 51.7	3 12 16.0	862173	5 17 30	
6	15 45 40.58	23 16 48.1	8510259	2 47.0	327 36 52.8	3 14 2.1	862147	6 17 30	
7	15 49 55.97	23 33 49.0	8462723	2 47.3	329 11 54.9	3 15 39.4	862126	7 17 30	
8	15 54 11.01	23 50 19.0	8414669	2 47.6	330 46 58.1	3 17 7.8	862091	8 17 30	
9	15 58 25.63	24 6 17.8	8366609	2 47.9	332 22 2.4	3 18 27.1	862060	9 17 30	
10	16 2 39.73	24 21 45.0	8316981	2 48.2	333 57 7.6	3 19 37.4	862026	10 17 30	
11	16 6 53.26	24 36 40.3	8267333	2 48.5	335 32 14.0	3 20 38.5	861991	11 17 30	
12	16 11 6.10	24 51 3.2	8217140	2 48.8	337 7 21.5	3 21 30.4	861953	12 17 30	
13	16 15 18.17	25 4 53.6	8166938	2 49.1	338 42 30.3	3 22 13.1	861914	13 17 30	
14	16 19 29.37	25 18 11.1	8115100	2 49.3	340 17 40.2	3 22 46.6	861873	14 17 30	
15	16 23 39.59	25 30 55.5	8063241	2 49.5	341 52 51.3	3 23 10.7	861829	15 17 30	
16	16 27 48.74	25 43 6.6	8010816	2 49.7	343 28 3.5	3 23 25.5	861784	16 17 30	
17	16 31 56.69	25 54 44.2	7957820	2 49.9	345 3 17.1	3 23 31.0	861736	17 17 30	
18	16 36 3.34	26 5 48.2	7904248	2 50.0	346 38 31.9	3 23 27.1	861687	18 17 30	
19	16 40 8.58	26 16 18.4	7850094	2 50.2	348 13 48.1	3 23 13.8	861636	19 17 30	
20	16 44 12.27	26 26 14.9	7795332	2 50.3	349 49 5.4	3 22 51.2	861584	20 17 30	
21	16 48 14.30	26 35 37.5	7740019	2 50.4	351 24 24.1	3 22 19.3	861529	21 17 30	
22	16 52 14.55	26 44 26.3	7684087	2 50.4	352 59 44.2	3 21 38.1	861473	22 17 30	
23	16 56 12.89	26 52 41.1	7627351	2 50.5	354 35 5.7	3 20 47.6	861413	23 17 30	
24	17 0 9.16	27 0 22.1	7570405	2 50.5	356 10 28.3	3 19 47.9	861353	24 17 30	
25	17 4 3.24	27 7 29.4	7512641	2 50.5	357 45 52.6	3 18 38.9	861294	25 17 30	
26	17 7 54.97	27 14 3.0	7454257	2 50.4	359 21 18.3	3 17 20.7	861232	26 17 30	
27	17 11 44.21	27 20 3.2	7395244	2 50.3	0 56 45.3	3 15 53.3	861168	27 17 30	
28	17 15 30.78	27 25 30.1	7335600	2 50.1	2 32 13.8	3 14 16.9	861102	28 17 30	
29	17 19 14.53	27 30 23.9	7273322	2 49.9	4 7 45.7	3 12 31.5	861035	29 17 30	
30	17 22 55.27	27 34 44.7	7214401	2 49.6	5 43 15.1	3 10 37.1	860967	30 17 30	
31	17 26 32.83	27 38 32.9	7152833	2 49.3	7 18 48.0	3 8 33.9	860897	31 17 30	
32	17 30 7.00	27 41 48.79	7090613	2 48.9	8 34 22.3	8.3 6 22.0	9.860826		

NOVEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
0 7.00	S. 27 41 48.7	9.7090613	2 48.9	8 54 22.3	S. 3 6 22.0	9.8608267
3 37.62	27 44 32.4	7027739	2 48.5	10 29 58.1	3 4 1.3	8607547
7 4.45	27 46 44.2	6964209	2 48.0	12 5 35.4	3 1 32.1	8606816
0 27.29	27 48 24.6	6900028	2 47.4	13 41 14.1	2 58 54.5	8606074
3 45.90	27 49 33.9	6835202	2 46.8	15 16 54.3	2 56 8.5	8605322
7 0.08	27 50 12.5	6769738	2 46.1	16 52 36.1	2 53 14.2	8604561
0 9.58	27 50 20.8	6703642	2 45.3	18 28 19.4	2 50 14.9	8603791
3 14.18	27 49 59.2	6636928	2 44.4	20 4 4.4	2 47 1.6	8603012
6 13.62	27 49 8.1	6569610	2 43.4	21 39 50.8	2 43 43.5	8602226
9 7.67	27 47 48.0	6501706	2 42.3	23 15 38.8	2 40 17.6	8601433
1 56.04	27 45 59.5	6433236	2 41.2	24 51 28.3	2 36 44.2	8600633
4 38.50	27 43 42.9	6364223	2 39.9	26 27 19.5	2 33 3.5	8599827
7 14.78	27 40 58.8	6294695	2 38.6	28 3 12.2	2 29 15.5	8599016
9 44.60	27 37 47.6	6224685	2 37.2	29 39 6.5	2 25 20.5	8598201
2 7.71	27 34 9.8	6154228	2 35.6	31 15 2.4	2 21 18.6	8597381
4 23.82	27 30 6.2	6083362	2 33.9	32 51 0.0	2 17 10.1	8596558
6 32.68	27 25 37.0	6012137	2 32.1	34 26 59.2	2 12 55.0	8595732
8 33.99	27 20 42.5	5940607	2 30.2	36 3 0.0	2 8 33.6	8594904
0 27.48	27 15 23.4	5868827	2 28.1	37 39 2.4	2 4 6.1	8594075
2 12.88	27 9 40.3	5796857	2 25.9	39 15 6.5	1 59 32.7	8593245
3 49.92	27 3 33.3	5724770	2 23.6	40 51 12.3	1 54 53.6	8592414
5 18.31	26 57 2.8	5652644	2 21.1	42 27 19.7	1 50 9.0	8591584
6 37.78	26 50 9.1	5580563	2 18.5	44 3 28.9	1 45 19.1	8590755
7 48.08	26 42 52.6	5508620	2 15.7	45 39 39.7	1 40 24.2	8589928
8 48.93	26 35 13.5	5436915	2 12.7	47 15 52.4	1 35 24.4	8589104
9 40.08	26 27 12.1	5365556	2 9.6	48 52 6.6	1 30 20.0	8588283
0 21.31	26 18 48.4	5294666	2 6.3	50 28 22.6	1 25 11.3	8587466
0 52.36	26 10 2.7	5224376	2 2.9	52 4 40.4	1 19 58.5	8586653
1 13.03	26 0 55.0	5154828	1 59.3	53 40 59.9	1 14 41.8	8585845
1 23.13	25 51 25.2	5086173	1 55.5	55 17 21.1	1 9 21.5	8585043
1 22.52	S. 25 41 33.3	9.5018580	1 51.6	56 53 44.2	S. 1 3 57.7	9.8584247

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.	
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.
	Noon.	Noon.	Noon.		Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]
1	18 31 22.52	S. 25 41 33.3	9.5018580	1 51.6	56 53 44.2	S. 1 3 57.7 9
2	18 31 11.06	25 31 19.2	4952229	1 47.4	58 30 9.0	0 58 30.8
3	18 30 48.65	25 20 42.8	4887310	1 43.1	60 6 35.6	0 53 1.0
4	18 30 15.25	25 9 44.2	4824023	1 38.6	61 43 3.9	0 47 28.6
5	18 29 30.86	24 58 23.4	4762582	1 34.0	63 19 34.1	0 41 53.9
6	18 28 35.54	24 46 40.3	4703214	1 29.1	64 56 6.1	0 36 17.1
7	18 27 29.46	24 34 35.0	4646152	1 24.1	66 32 39.9	0 30 38.4
8	18 26 12.82	24 22 7.3	4591638	1 18.8	68 9 15.6	0 24 58.2
9	18 24 45.91	24 9 17.7	4539919	1 13.4	69 45 52.9	0 19 16.6
10	18 23 9.10	23 56 6.6	4491242	1 7.9	71 22 32.1	0 13 34.0
11	18 21 22.85	23 42 34.8	4445862	1 2.2	72 59 13.1	0 7 50.7
12	18 19 27.72	23 28 43.1	4404026	0 56.4	74 35 55.8	S. 0 2 6.9
13	18 17 24.36	23 14 32.7	4365969	0 50.4	76 12 40.5	N. 0 3 37.1
14	18 15 13.50	23 0 4.8	4331912	0 44.4	77 49 26.9	0 9 21.1
15	18 12 55.97	22 45 21.5	4302062	0 38.2	79 26 15.1	0 15 4.7
16	18 10 32.62	22 30 24.9	4276608	0 31.9	81 3 5.0	0 20 47.7
17	18 8 4.43	22 15 17.3	4255725	0 25.5	82 39 56.8	0 26 29.8
18	18 5 32.46	22 0 1.5	4239560	0 19.0	84 16 50.3	0 32 10.8
19	18 2 57.74	21 44 40.7	4228213	0 12.5	85 53 45.6	0 37 50.3
20	18 0 21.37	21 29 18.4	4221752	$\left\{ \begin{smallmatrix} 0 \\ 125 \end{smallmatrix} \right. \frac{6.01}{50.5}$	87 30 42.6	0 43 28.1
21	17 57 44.46	21 13 58.0	4220218	23 52.9	89 7 41.2	0 49 3.9
22	17 55 8.13	20 58 43.6	4223619	23 46.4	90 44 41.6	0 54 37.4
23	17 52 33.46	20 43 39.0	4231929	23 40.0	92 21 43.6	1 0 8.4
24	17 50 1.49	20 28 48.3	4245095	23 33.6	93 58 47.4	1 5 36.6
25	17 47 33.23	20 14 15.5	4263019	23 27.3	95 35 52.7	1 11 1.7
26	17 45 9.65	20 0 4.6	4285577	23 21.1	97 12 59.7	1 16 23.5
27	17 42 51.65	19 46 19.2	4312616	23 15.0	98 50 8.2	1 21 41.7
28	17 40 40.02	19 33 2.8	4343961	23 9.0	100 27 18.4	1 26 56.1
29	17 38 35.51	19 20 18.6	4379428	23 3.1	102 4 30.0	1 32 6.3
30	17 36 38.78	19 8 9.7	4418807	22 57.3	103 41 43.2	1 37 12.2
31	17 34 50.40	S. 18 56 38.8	9.4461877	22 51.7	105 18 57.7	N. 1 42 13.4 9

JANUARY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^m 52 ^s 99	S. 23 40 51 ¹ 1	0 3791103	^h 22 43 ^m 6	^o 250 31 25 ⁰ 0	S. 0 42 10 ⁵ 0	0 1738363
0 5 ⁵⁰	23 43 53 ⁴	3784158	22 42 ⁹	251 4 4 ⁶	0 43 9 ⁰	1734602
3 18 ³⁵	23 46 41 ⁰	3777155	22 42 ¹	251 36 47 ⁵	0 44 7 ³	1730844
6 31 ⁵³	23 49 14 ¹	3770093	22 41 ⁴	252 9 33 ⁸	0 45 5 ⁵	1727087
9 45 ⁰¹	23 51 32 ⁵	3762975	22 40 ⁷	252 42 23 ⁶	0 46 3 ⁶	1723333
12 58 ⁷⁹	23 53 36 ¹	3755799	22 40 ⁰	253 15 16 ⁷	0 47 1 ⁵	1719581
16 12 ⁸⁵	23 55 24 ⁹	3748566	22 39 ³	253 48 13 ³	0 47 59 ³	1715834
19 27 ¹⁸	23 56 58 ⁸	3741275	22 38 ⁶	254 21 13 ⁴	0 48 56 ⁹	1712090
22 41 ⁷⁵	23 58 17 ⁶	3733930	22 37 ⁹	254 54 16 ⁸	0 49 54 ³	1708350
25 56 ⁵⁶	23 59 21 ⁵	3726528	22 37 ²	255 27 23 ⁶	0 50 51 ⁵	1704614
29 11 ⁶⁰	24 0 10 ²	3719072	22 36 ⁵	256 0 34 ⁰	0 51 48 ⁵	1700883
2 26 ⁸⁴	24 0 43 ⁹	3711561	22 35 ⁸	256 33 47 ⁷	0 52 45 ⁴	1697157
5 42 ²⁷	24 1 2 ³	3703997	22 35 ¹	257 7 4 ⁸	0 53 42 ¹	1693437
8 57 ⁸⁸	24 1 5 ⁵	3696381	22 34 ⁴	257 40 25 ⁵	0 54 38 ⁶	1689722
12 13 ⁶⁴	24 0 53 ⁵	3688716	22 33 ⁸	258 13 49 ⁵	0 55 34 ⁸	1686014
15 29 ⁵⁵	24 0 26 ³	3681000	22 33 ¹	258 47 17 ⁰	0 56 30 ⁸	1682312
18 45 ⁵⁹	23 59 43 ⁷	3673235	22 32 ⁴	259 20 47 ⁹	0 57 26 ⁶	1678618
22 1 ⁷⁶	23 58 45 ⁷	3665423	22 31 ⁷	259 54 22 ⁴	0 58 22 ²	1674931
25 18 ⁰³	23 57 32 ⁵	3657565	22 31 ⁰	260 28 0 ²	0 59 17 ⁶	1671252
28 34 ⁴⁰	23 56 3 ⁸	3649661	22 30 ⁴	261 1 41 ⁴	1 0 12 ⁶	1667581
31 50 ⁸⁴	23 54 19 ⁸	3641713	22 29 ⁷	261 35 26 ¹	1 1 7 ⁴	1663918
35 7 ³⁵	23 52 20 ⁴	3633722	22 29 ⁰	262 9 14 ³	1 2 2 ⁰	1660265
38 23 ⁹¹	23 50 5 ⁶	3625690	22 28 ⁴	262 43 5 ⁹	1 2 56 ³	1656621
41 40 ⁵¹	23 47 35 ⁴	3617615	22 27 ⁷	263 17 0 ⁹	1 3 50 ³	1652987
44 57 ¹⁴	23 44 49 ⁹	3609499	22 27 ¹	263 50 59 ³	1 4 44 ¹	1649364
48 13 ⁷⁹	23 41 49 ⁰	3601342	22 26 ⁴	264 25 1 ¹	1 5 37 ⁶	1645751
51 30 ⁴⁴	23 38 32 ⁶	3593144	22 25 ⁸	264 59 6 ⁴	1 6 30 ⁷	1642150
54 47 ⁰⁹	23 35 0 ⁹	3584906	22 25 ¹	265 33 15 ⁰	1 7 23 ⁵	1638559
58 3 ⁷¹	23 31 13 ⁸	3576628	22 24 ⁵	266 7 27 ⁰	1 8 16 ⁰	1634980
1 20 ³⁰	23 27 11 ⁴	3568311	22 23 ⁸	266 41 42 ⁵	1 9 8 ²	1631414
4 36 ⁸⁴	23 22 53 ⁸	3559955	22 23 ²	267 16 1 ³	1 10 0 ¹	1627860
7 53 ³¹	S. 23 18 20 ⁹	0 3551559	22 22 ⁵	267 50 23 ⁵	S. 1 10 51 ⁶	0 1624319

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	19 7 53.31	S. 23 18 20.9	0.3551559	22 22.5	267 50 23.5	S. 1 10 51.6	0.1624319
2	19 11 9.71	23 13 33.0	.3543124	22 21.8	268 24 49.1	1 11 42.8	.1620794
3	19 14 26.02	23 8 30.0	.3534650	22 21.1	268 59 18.0	1 12 33.7	.1617282
4	19 17 42.23	23 3 11.9	.3526136	22 20.5	269 33 50.3	1 13 24.2	.1613782
5	19 20 58.33	22 57 38.8	.3517583	22 19.8	270 8 26.0	1 14 14.3	.1610297
6	19 24 14.29	22 51 50.8	.3508993	22 19.1	270 43 4.9	1 15 4.1	.1606829
7	19 27 30.11	22 45 47.9	.3500365	22 18.4	271 17 47.3	1 15 53.5	.1603376
8	19 30 45.76	22 39 30.0	.3491700	22 17.7	271 52 33.0	1 16 42.5	.1599939
9	19 34 1.24	22 32 57.5	.3482998	22 17.0	272 27 22.0	1 17 31.1	.1596519
10	19 37 16.53	22 26 10.3	.3474260	22 16.3	273 2 14.3	1 18 19.3	.1593115
11	19 40 31.62	22 19 8.7	.3465487	22 15.6	273 37 10.0	1 19 7.1	.1589728
12	19 43 46.50	22 11 52.5	.3456680	22 14.9	274 12 8.9	1 19 54.5	.1586359
13	19 47 1.15	22 4 22.0	.3447840	22 14.2	274 47 11.1	1 20 41.5	.1583007
14	19 50 15.57	21 56 37.2	.3438969	22 13.5	275 22 16.6	1 21 28.0	.1579674
15	19 53 29.75	21 48 38.2	.3430069	22 12.8	275 57 25.2	1 22 14.1	.1576359
16	19 56 43.67	21 40 25.2	.3421141	22 12.1	276 32 37.2	1 22 59.7	.1573064
17	19 59 57.33	21 31 58.2	.3412185	22 11.4	277 7 52.4	1 23 44.9	.1569790
18	20 3 10.71	21 23 17.3	.3403202	22 10.7	277 43 10.8	1 24 29.6	.1566536
19	20 6 23.81	21 14 22.7	.3394192	22 10.0	278 18 32.3	1 25 13.8	.1563303
20	20 9 36.63	21 5 14.6	.3385158	22 9.2	278 53 57.0	1 25 57.6	.1560092
21	20 12 49.15	20 55 53.0	.3376101	22 8.5	279 29 24.7	1 26 40.9	.1556902
22	20 16 1.37	20 46 17.9	.3367020	22 7.7	280 4 55.6	1 27 23.7	.1553735
23	20 19 13.29	20 36 29.6	.3357917	22 7.0	280 40 29.6	1 28 6.0	.1550589
24	20 22 24.90	20 26 28.1	.3348792	22 6.2	281 16 6.6	1 28 47.8	.1547467
25	20 25 36.20	20 16 13.5	.3339645	22 5.5	281 51 46.8	1 29 29.1	.1544368
26	20 28 47.18	20 5 46.2	.3330474	22 4.7	282 27 30.1	1 30 9.8	.1541292
27	20 31 57.84	19 55 6.0	.3321280	22 3.9	283 3 16.3	1 30 50.0	.1538241
28	20 35 8.16	19 44 13.3	.3312063	22 3.1	283 39 5.7	1 31 29.7	.1535214
29	20 38 18.15	S. 19 33 8.0	0.3302823	22 2.4	284 14 58.1	S. 1 32 8.9	0.1532210

MARCH, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<small>m s</small>	<small>° ' "</small>	<small>0</small>	<small>h m</small>	<small>° ' "</small>	<small>° ' "</small>	<small>0</small>
38 18.15	S. 19 33 8.0	0.3302823	22 2.4	284 14 58.1	S. 1 32 8.9	0.1532210
41 27.79	19 21 50.4	.3293559	22 1.6	284 50 53.4	1 32 47.5	.1529231
44 37.09	19 10 20.6	.3284273	22 0.8	285 26 51.8	1 33 25.6	.1526276
47 46.03	18 58 38.8	.3274964	22 0.0	286 2 53.1	1 34 3.1	.1523348
50 54.61	18 46 45.2	.3265633	21 59.2	286 38 57.2	1 34 40.0	.1520448
54 2.83	18 34 39.9	.3256280	21 58.4	287 15 4.3	1 35 16.3	.1517574
57 10.68	18 22 23.1	.3246905	21 57.6	287 51 14.2	1 35 52.0	.1514728
0 18.16	18 9 54.9	.3237509	21 56.7	288 27 27.1	1 36 27.2	.1511909
3 25.26	17 57 15.6	.3228092	21 55.9	289 3 42.9	1 37 1.8	.1509120
6 31.97	17 44 25.3	.3218655	21 55.0	289 40 1.4	1 37 35.8	.1506360
9 38.30	17 31 24.1	.3209197	21 54.2	290 16 22.8	1 38 9.2	.1503628
12 44.23	17 18 12.3	.3199720	21 53.3	290 52 46.9	1 38 41.9	.1500926
15 49.77	17 4 49.9	.3190226	21 52.5	291 29 13.6	1 39 14.0	.1498254
18 54.91	16 51 17.3	.3180714	21 51.6	292 5 43.0	1 39 45.4	.1495612
21 59.65	16 37 34.6	.3171186	21 50.7	292 42 15.0	1 40 16.2	.1493001
25 3.99	16 23 41.9	.3161642	21 49.8	293 18 49.8	1 40 46.4	.1490422
28 7.94	16 9 39.4	.3152083	21 49.0	293 55 27.0	1 41 16.0	.1487874
31 11.49	15 55 27.3	.3142510	21 48.1	294 32 6.9	1 41 44.9	.1485357
34 14.65	15 41 5.8	.3132925	21 47.2	295 8 49.2	1 42 13.1	.1482872
37 17.41	15 26 35.2	.3123328	21 46.3	295 45 34.2	1 42 40.7	.1480420
40 19.78	15 11 55.4	.3113719	21 45.4	296 22 21.7	1 43 7.6	.1478001
43 21.76	14 57 6.7	.3104099	21 44.5	296 59 11.6	1 43 33.8	.1475614
46 23.36	14 42 9.3	.3094469	21 43.6	297 36 4.0	1 43 59.3	.1473261
49 24.58	14 27 3.3	.3084829	21 42.7	298 12 58.8	1 44 24.1	.1470943
52 25.41	14 11 49.0	.3075178	21 41.7	298 49 56.0	1 44 48.3	.1468659
55 25.87	13 56 26.5	.3065517	21 40.8	299 26 55.5	1 45 11.7	.1466409
58 25.95	13 40 56.0	.3055845	21 39.9	300 3 57.4	1 45 34.4	.1464193
1 25.66	13 25 17.7	.3046161	21 38.9	300 41 1.5	1 45 56.4	.1462014
4 25.01	13 9 31.7	.3036466	21 38.0	301 18 7.8	1 46 17.7	.1459871
7 24.01	12 53 38.3	.3026759	21 37.0	301 55 16.4	1 46 38.3	.1457764
10 22.66	12 37 37.6	.3017040	21 36.0	302 32 27.0	1 46 58.1	.1455692
13 20.95	S. 12 21 30.0	0.3007308	21 35.0	303 9 39.8	S. 1 47 17.2	0.1453657

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	N	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	22 13 20.95	S. 12 21 30.0	0.3007308	21 35.0	303 9 39.8	S. 1 47 17.2	0.149	
2	22 16 18.89	12 5 15.4	.2997562	21 34.0	303 46 54.7	1 47 35.6	.149	
3	22 19 16.48	11 48 54.2	.2987801	21 33.0	304 24 11.5	1 47 53.3	.149	
4	22 22 13.72	11 32 26.5	.2978026	21 32.0	305 1 30.4	1 48 10.2	.149	
5	22 25 10.60	11 15 52.6	.2968236	21 31.0	305 38 51.3	1 48 26.4	.149	
6	22 28 7.13	10 59 12.6	.2958433	21 30.0	306 16 14.0	1 48 41.8	.149	
7	22 31 3.32	10 42 26.7	.2948617	21 29.0	306 53 38.8	1 48 56.4	.149	
8	22 33 59.17	10 25 35.1	.2938787	21 28.0	307 31 5.4	1 49 10.3	.149	
9	22 36 54.70	10 8 38.2	.2928945	21 27.0	308 8 33.7	1 49 23.4	.149	
10	22 39 49.90	9 51 36.0	.2919090	21 25.9	308 46 3.9	1 49 35.7	.149	
11	22 42 44.77	9 34 28.7	.2909221	21 24.9	309 23 35.7	1 49 47.3	.149	
12	22 45 39.31	9 17 16.6	.2899341	21 23.9	310 1 9.3	1 49 58.1	.149	
13	22 48 33.53	8 59 59.8	.2889450	21 22.9	310 38 44.6	1 50 8.1	.149	
14	22 51 27.43	8 42 38.6	.2879549	21 21.8	311 16 21.5	1 50 17.3	.149	
15	22 54 21.01	8 25 13.1	.2869637	21 20.8	311 53 59.9	1 50 25.7	.149	
16	22 57 14.29	8 7 43.5	.2859716	21 19.7	312 31 39.9	1 50 33.3	.149	
17	23 0 7.29	7 50 10.1	.2849785	21 18.7	313 9 21.4	1 50 40.1	.149	
18	23 3 0.00	7 32 33.1	.2839845	21 17.6	313 47 4.4	1 50 46.2	.149	
19	23 5 52.44	7 14 52.4	.2829896	21 16.5	314 24 48.7	1 50 51.5	.149	
20	23 8 44.60	6 57 8.3	.2819939	21 15.4	315 2 34.4	1 50 56.0	.149	
21	23 11 36.50	6 39 21.1	.2809973	21 14.4	315 40 21.5	1 50 59.7	.149	
22	23 14 28.14	6 21 30.9	.2799998	21 13.3	316 18 9.8	1 51 2.5	.149	
23	23 17 19.53	6 3 37.8	.2790012	21 12.2	316 55 59.4	1 51 4.5	.149	
24	23 20 10.68	5 45 42.1	.2780017	21 11.1	317 33 50.2	1 51 5.7	.149	
25	23 23 1.60	5 27 44.0	.2770011	21 10.0	318 11 42.0	1 51 6.1	.149	
26	23 25 52.30	5 9 43.6	.2759993	21 8.9	318 49 35.0	1 51 5.8	.149	
27	23 28 42.78	4 51 41.3	.2749962	21 7.8	319 27 29.0	1 51 4.7	.149	
28	23 31 33.05	4 33 37.1	.2739917	21 6.6	320 5 24.0	1 51 2.7	.149	
29	23 34 23.10	4 15 31.0	.2729856	21 5.5	320 43 20.0	1 50 59.9	.149	
30	23 37 12.95	3 57 23.5	.2719780	21 4.4	321 21 16.9	1 50 56.3	.149	
31	23 40 2.61	S. 3 39 14.6	0.2709687	21 3.3	321 59 14.7	S. 1 50 51.9	0.149	

MAY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	23 40 2'61	S. 3 39 14'6	0'2709687	21 3'3	321 59 14'7	S. 1 50 51'9	0'1411138
2	23 42 52'08	3 21 4'6	'2699578	21 2'2	322 37 13'3	1 50 46'7	'1410376
3	23 45 41'37	3 2 53'8	'2689450	21 1'1	323 15 12'6	1 50 40'7	'1409659
4	23 48 30'48	2 44 42'3	'2679303	20 59'9	323 53 12'6	1 50 33'8	'1408987
5	23 51 19'41	2 26 30'2	'2669134	20 58'8	324 31 13'3	1 50 26'1	'1408359
6	23 54 8'17	2 8 17'8	'2658945	20 57'7	325 9 14'6	1 50 17'6	'1407775
7	23 56 56'76	1 50 5'3	'2648736	20 56'6	325 47 16'5	1 50 8'3	'1407237
8	23 59 45'19	1 31 52'8	'2638506	20 55'4	326 25 19'0	1 49 58'2	'1406743
9	0 2 33'46	1 13 40'6	'2628255	20 54'3	327 3 21'9	1 49 47'3	'1406295
10	0 5 21'58	0 55 28'8	'2617986	20 53'2	327 41 25'3	1 49 35'6	'1405891
11	0 8 9'55	0 37 17'6	'2607696	20 52'0	328 19 29'1	1 49 23'1	'1405533
12	0 10 57'38	0 19 7'3	'2597386	20 50'9	328 57 33'3	1 49 9'8	'1405219
13	0 13 45'08	S. 0 0 58'0	'2587056	20 49'7	329 35 37'7	1 48 55'6	'1404951
14	0 16 32'65	N. 0 17 10'2	'2576705	20 48'6	330 13 42'4	1 48 40'6	'1404727
15	0 19 20'10	0 35 17'0	'2566332	20 47'4	330 51 47'4	1 48 24'9	'1404549
16	0 22 7'44	0 53 22'2	'2555940	20 46'3	331 29 52'5	1 48 8'4	'1404416
17	0 24 54'66	1 11 25'9	'2545527	20 45'1	332 7 57'6	1 47 51'1	'1404330
18	0 27 41'78	1 29 27'7	'2535093	20 43'9	332 46 2'8	1 47 33'0	'1404289
19	0 30 28'81	1 47 27'5	'2524638	20 42'8	333 24 8'0	1 47 14'1	'1404292
20	0 33 15'76	2 5 25'0	'2514161	20 41'6	334 2 13'2	1 46 54'4	'1404341
21	0 36 2'63	2 23 20'3	'2503661	20 40'5	334 40 18'3	1 46 33'9	'1404436
22	0 38 49'44	2 41 13'1	'2493137	20 39'3	335 18 23'3	1 46 12'6	'1404576
23	0 41 36'18	2 59 3'3	'2482588	20 38'1	335 56 28'1	1 45 50'5	'1404762
24	0 44 22'86	3 16 50'6	'2472013	20 37'0	336 34 32'7	1 45 27'7	'1404993
25	0 47 9'50	3 34 35'0	'2461410	20 35'8	337 12 37'0	1 45 4'1	'1405269
26	0 49 56'09	3 52 16'3	'2450777	20 34'6	337 50 40'9	1 44 39'7	'1405590
27	0 52 42'65	4 9 54'3	'2440113	20 33'5	338 28 44'4	1 44 14'6	'1405957
28	0 55 29'18	4 27 28'8	'2429417	20 32'3	339 6 47'5	1 43 48'7	'1406369
29	0 58 15'67	4 44 59'6	'2418686	20 31'2	339 44 50'2	1 43 22'0	'1406825
30	1 1 2'13	5 2 26'6	'2407919	20 30'0	340 22 52'3	1 42 54'6	'1407326
31	1 3 48'57	5 19 49'7	'2397114	20 28'8	341 0 53'8	1 42 26'4	'1407872
32	1 6 35'00	N. 5 37 8'5	0'2386271	20 27'7	341 38 54'8	S. 1 41 57'5	0'1408463

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	1 6 35.00	N. 5 37 8.5	0.2386271	20 27.7	341 38 54.8	S. 1 41 57.5	0.1408460
2	1 9 21.41	5 54 23.1	.2375388	20 26.5	342 16 55.0	1 41 27.8	.1409098
3	1 12 7.81	6 11 33.2	.2364464	20 25.3	342 54 54.5	1 40 57.4	.1409778
4	1 14 54.20	6 28 38.7	.2353499	20 24.2	343 32 53.4	1 40 26.3	.1410302
5	1 17 40.59	6 45 39.2	.2342491	20 23.0	344 10 51.4	1 39 54.5	.1411270
6	1 20 26.97	7 2 34.8	.2331439	20 21.8	344 48 48.7	1 39 21.9	.1412083
7	1 23 13.34	7 19 25.3	.2320343	20 20.7	345 26 45.0	1 38 48.6	.1412941
8	1 25 59.70	7 36 10.4	.2309203	20 19.5	346 4 40.3	1 38 14.6	.1413842
9	1 28 46.05	7 52 49.9	.2298019	20 18.3	346 42 34.8	1 37 40.0	.1414786
10	1 31 32.40	8 9 23.9	.2286789	20 17.1	347 20 28.1	1 37 4.7	.1415774
11	1 34 18.75	8 25 52.1	.2275513	20 15.9	347 58 20.3	1 36 28.7	.1416805
12	1 37 5.10	8 42 14.3	.2264191	20 14.8	348 36 11.5	1 35 52.0	.1417879
13	1 39 51.46	8 58 30.4	.2252822	20 13.6	349 14 1.4	1 35 14.6	.1418997
14	1 42 37.83	9 14 40.3	.2241405	20 12.5	349 51 50.2	1 34 36.5	.1420157
15	1 45 24.22	9 30 43.8	.2229941	20 11.3	350 29 37.6	1 33 57.8	.1421360
16	1 48 10.63	9 46 41.0	.2218429	20 10.1	351 7 23.7	1 33 18.4	.1422605
17	1 50 57.06	10 2 31.5	.2206867	20 9.0	351 45 8.6	1 32 38.3	.1423892
18	1 53 43.51	10 18 15.3	.2195255	20 7.8	352 22 52.0	1 31 57.6	.1425221
19	1 56 29.99	10 33 52.3	.2183590	20 6.6	353 0 34.1	1 31 16.2	.1426592
20	1 59 16.50	10 49 22.3	.2171871	20 5.5	353 38 14.6	1 30 34.2	.1428004
21	2 2 3.05	11 4 45.3	.2160097	20 4.3	354 15 53.6	1 29 51.6	.1429458
22	2 4 49.64	11 20 1.0	.2148265	20 3.2	354 53 31.2	1 29 8.4	.1430933
23	2 7 36.27	11 35 9.4	.2136375	20 2.0	355 31 7.1	1 28 24.5	.1432489
24	2 10 22.94	11 50 10.3	.2124423	20 0.8	356 8 41.4	1 27 40.0	.1434065
25	2 13 9.65	12 5 3.6	.2112409	19 59.7	356 46 14.0	1 26 55.0	.1435682
26	2 15 56.39	12 19 49.2	.2100329	19 58.5	357 23 44.9	1 26 9.4	.1437340
27	2 18 43.17	12 34 27.0	.2088181	19 57.3	358 1 14.0	1 25 23.2	.1439038
28	2 21 29.99	12 48 56.8	.2075962	19 56.2	358 38 41.2	1 24 36.5	.1440775
29	2 24 16.84	13 3 18.4	.2063671	19 55.0	359 16 6.7	1 23 49.2	.1442551
30	2 27 3.73	13 17 31.8	.2051307	19 53.9	359 53 30.2	1 23 1.3	.1444365
31	2 29 50.64	N. 13 31 36.8	0.2038867	19 52.7	0 30 51.9	S. 1 22 12.9	0.1446219

JULY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^h ^m ^s 2 29 50.64	[°] ['] ["] N. 13 31 36.8	0.2038867	^h ^m 19 52.7	[°] ['] ["] 0 30 51.9	[°] ['] ["] S. 1 22 12.9	0.1446219
2 32 37.58	13 45 33.3	.2026348	19 51.5	1 8 11.5	1 21 23.9	.1448112
2 35 24.54	13 59 21.2	.2013752	19 50.4	1 45 29.2	1 20 34.4	.1450041
2 38 11.50	14 13 0.5	.2001075	19 49.2	2 22 44.8	1 19 44.4	.1452008
2 40 58.47	14 26 31.0	.1988317	19 48.0	2 59 58.4	1 18 53.9	.1454012
2 43 45.44	14 39 52.5	.1975476	19 46.9	3 37 9.9	1 18 2.9	.1456053
2 46 32.41	14 53 5.1	.1962552	19 45.7	4 14 19.2	1 17 11.3	.1458131
2 49 19.38	15 6 8.4	.1949545	19 44.6	4 51 26.5	1 16 19.2	.1460244
2 52 6.34	15 19 2.5	.1936453	19 43.4	5 28 31.5	1 15 26.6	.1462394
2 54 53.28	15 31 47.3	.1923276	19 42.2	6 5 34.2	1 14 33.6	.1464579
2 57 40.20	15 44 22.6	.1910013	19 41.1	6 42 34.7	1 13 40.1	.1466800
3 0 27.11	15 56 48.5	.1896662	19 39.9	7 19 32.7	1 12 46.2	.1469054
3 3 13.99	16 9 4.8	.1883223	19 38.7	7 56 28.4	1 11 51.8	.1471344
3 6 0.83	16 21 11.4	.1869696	19 37.6	8 33 21.8	1 10 57.0	.1473669
3 8 47.64	16 33 8.2	.1856079	19 36.4	9 10 12.7	1 10 1.8	.1476028
3 11 34.41	16 44 55.3	.1842369	19 35.3	9 47 1.2	1 9 6.1	.1478420
3 14 21.14	16 56 32.6	.1828567	19 34.1	10 23 47.2	1 8 10.0	.1480846
3 17 7.83	17 7 59.9	.1814670	19 32.9	11 0 30.8	1 7 13.5	.1483305
3 19 54.48	17 19 17.3	.1800676	19 31.8	11 37 11.7	1 6 16.7	.1485797
3 22 41.07	17 30 24.6	.1786582	19 30.6	12 13 50.1	1 5 19.5	.1488321
3 25 27.60	17 41 21.9	.1772386	19 29.4	12 50 26.0	1 4 21.9	.1490877
3 28 14.07	17 52 9.0	.1758087	19 28.3	13 26 59.2	1 3 23.9	.1493464
3 31 0.47	18 2 46.0	.1743681	19 27.1	14 3 29.8	1 2 25.5	.1496081
3 33 46.80	18 13 12.7	.1729166	19 25.9	14 39 57.7	1 1 26.8	.1498730
3 36 33.04	18 23 29.2	.1714539	19 24.7	15 16 22.9	1 0 27.8	.1501409
3 39 19.19	18 33 35.2	.1699797	19 23.6	15 52 45.5	0 59 28.4	.1504117
3 42 5.23	18 43 31.0	.1684939	19 22.4	16 29 5.3	0 58 28.7	.1506854
3 44 51.16	18 53 16.2	.1669961	19 21.2	17 5 22.3	0 57 28.6	.1509620
3 47 36.96	19 2 51.0	.1654861	19 20.0	17 41 36.5	0 56 28.2	.1512415
3 50 22.61	19 12 15.2	.1639637	19 18.9	18 17 47.9	0 55 27.6	.1515237
3 53 8.11	19 21 28.9	.1624287	19 17.7	18 53 56.4	0 54 26.7	.1518087
3 55 53.45	N. 19 30 32.0	0.1608807	19 16.5	19 30 2.1	S. 0 53 25.5	0.1520964

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
1	^{h m s} 3 55 53.45	^{° ′ ″} N. 19 30 32.0	0.1608807	^{h m} 19 16.5	^{° ′ ″} 19 30 2.1	^{° ′ ″} S. 0 53 25.5	0.1529	
2	3 58 38.61	19 39 24.4	.1593197	19 15.3	20 6 4.8	0 52 24.0	.1529	
3	4 1 23.57	19 48 6.1	.1577455	19 14.1	20 42 4.6	0 51 22.3	.1529	
4	4 4 8.33	19 56 37.2	.1561581	19 12.9	21 18 1.4	0 50 20.3	.1529	
5	4 6 52.87	20 4 57.7	.1545573	19 11.7	21 53 55.2	0 49 18.1	.1533	
6	4 9 37.17	20 13 7.4	.1529430	19 10.5	22 29 46.0	0 48 15.6	.1533	
7	4 12 21.21	20 21 6.4	.1513152	19 9.3	23 5 33.8	0 47 12.9	.1538	
8	4 15 4.99	20 28 54.8	.1496737	19 8.0	23 41 18.6	0 46 10.0	.1541	
9	4 17 48.49	20 36 32.5	.1480184	19 6.8	24 17 0.3	0 45 6.9	.1544	
10	4 20 31.71	20 43 59.5	.1463492	19 5.6	24 52 38.9	0 44 3.5	.1548	
11	4 23 14.65	20 51 15.8	.1446659	19 4.4	25 28 14.5	0 43 0.0	.1551	
12	4 25 57.29	20 58 21.5	.1429686	19 3.1	26 3 47.0	0 41 56.3	.1554	
13	4 28 39.61	21 5 16.6	.1412569	19 1.9	26 39 16.3	0 40 52.4	.1557	
14	4 31 21.60	21 12 1.1	.1395307	19 0.7	27 14 42.5	0 39 48.4	.1560	
15	4 34 3.26	21 18 35.1	.1377898	18 59.4	27 50 5.6	0 38 44.2	.1563	
16	4 36 44.57	21 24 58.7	.1360341	18 58.2	28 25 25.4	0 37 39.8	.1567	
17	4 39 25.51	21 31 11.9	.1342633	18 56.9	29 0 42.2	0 36 35.3	.1570	
18	4 42 6.08	21 37 14.6	.1324771	18 55.6	29 35 55.7	0 35 30.7	.1573	
19	4 44 46.27	21 43 7.0	.1306752	18 54.4	30 11 6.0	0 34 26.0	.1576	
20	4 47 26.06	21 48 49.0	.1288575	18 53.1	30 46 13.1	0 33 21.2	.1580	
21	4 50 5.43	21 54 20.8	.1270235	18 51.8	31 21 17.0	0 32 16.2	.1583	
22	4 52 44.38	21 59 42.4	.1251729	18 50.5	31 56 17.6	0 31 11.1	.1586	
23	4 55 22.88	22 4 53.9	.1233054	18 49.2	32 31 14.9	0 30 5.9	.1590	
24	4 58 0.92	22 9 55.3	.1214208	18 47.9	33 6 9.0	0 29 0.7	.1593	
25	5 0 38.49	22 14 46.8	.1195186	18 46.6	33 40 59.7	0 27 55.3	.1597	
26	5 3 15.55	22 19 28.3	.1175987	18 45.3	34 15 47.2	0 26 49.9	.1600	
27	5 5 52.09	22 24 0.0	.1156607	18 44.0	34 50 31.3	0 25 44.4	.1603	
28	5 8 28.09	22 28 21.8	.1137045	18 42.6	35 25 12.1	0 24 38.8	.1607	
29	5 11 3.53	22 32 33.9	.1117298	18 41.3	35 59 49.6	0 23 33.2	.1610	
30	5 13 38.39	22 36 36.4	.1097365	18 39.9	36 34 23.8	0 22 27.6	.1613	
31	5 16 12.65	22 40 29.3	.1077243	18 38.5	37 8 54.5	0 21 22.0	.1617	
32	5 18 46.28	N. 22 44 12.9	0.1056933	18 37.1	37 43 22.0	S. 0 20 16.3	0.1622	

SEPTEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
				Passage.			
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
1	^h 5 ^m 18 ^s 46 ^{.28}	[°] N. 22 ['] 44 ["] 12 ^{.9}	0 ^{.1056933}	^h 18 ^m 37 ^{.1}	[°] 37 ['] 43 ["] 22 ^{.0}	[°] S. 0 ['] 20 ["] 16 ^{.3}	0 ^{.1621466}
2	5 21 19 ^{.27}	22 47 47 ^{.0}	0 ^{.1036432}	18 35 ^{.7}	38 17 46 ^{.1}	0 19 10 ^{.6}	0 ^{.1624999}
3	5 23 51 ^{.60}	22 51 11 ^{.9}	0 ^{.1015740}	18 34 ^{.3}	38 52 6 ^{.9}	0 18 4 ^{.9}	0 ^{.1628545}
4	5 26 23 ^{.24}	22 54 27 ^{.8}	0 ^{.0994853}	18 32 ^{.9}	39 26 24 ^{.2}	0 16 59 ^{.2}	0 ^{.1632104}
5	5 28 54 ^{.18}	22 57 34 ^{.6}	0 ^{.0973773}	18 31 ^{.4}	40 0 38 ^{.2}	0 15 53 ^{.5}	0 ^{.1635675}
6	5 31 24 ^{.39}	23 0 32 ^{.6}	0 ^{.0952496}	18 30 ^{.0}	40 34 48 ^{.8}	0 14 47 ^{.9}	0 ^{.1639258}
7	5 33 53 ^{.86}	23 3 21 ^{.9}	0 ^{.0931023}	18 28 ^{.5}	41 8 56 ^{.0}	0 13 42 ^{.3}	0 ^{.1642852}
8	5 36 22 ^{.57}	23 6 2 ^{.7}	0 ^{.0909351}	18 27 ^{.1}	41 42 59 ^{.8}	0 12 36 ^{.7}	0 ^{.1646458}
9	5 38 50 ^{.51}	23 8 35 ^{.0}	0 ^{.0887481}	18 25 ^{.6}	42 17 0 ^{.2}	0 11 31 ^{.1}	0 ^{.1650074}
10	5 41 17 ^{.65}	23 10 59 ^{.0}	0 ^{.0865411}	18 24 ^{.1}	42 50 57 ^{.1}	0 10 25 ^{.5}	0 ^{.1653701}
11	5 43 43 ^{.99}	23 13 14 ^{.8}	0 ^{.0843141}	18 22 ^{.6}	43 24 50 ^{.7}	0 9 20 ^{.0}	0 ^{.1657338}
12	5 46 9 ^{.50}	23 15 22 ^{.6}	0 ^{.0820667}	18 21 ^{.0}	43 58 40 ^{.9}	0 8 14 ^{.5}	0 ^{.1660985}
13	5 48 34 ^{.16}	23 17 22 ^{.5}	0 ^{.0797990}	18 19 ^{.5}	44 32 27 ^{.6}	0 7 9 ^{.1}	0 ^{.1664641}
14	5 50 57 ^{.96}	23 19 14 ^{.7}	0 ^{.0775105}	18 17 ^{.9}	45 6 11 ^{.0}	0 6 3 ^{.8}	0 ^{.1668305}
15	5 53 20 ^{.88}	23 20 59 ^{.4}	0 ^{.0752012}	18 16 ^{.3}	45 39 51 ^{.0}	0 4 58 ^{.6}	0 ^{.1671979}
16	5 55 42 ^{.89}	23 22 36 ^{.7}	0 ^{.0728707}	18 14 ^{.7}	46 13 27 ^{.4}	0 3 53 ^{.5}	0 ^{.1675661}
17	5 58 3 ^{.98}	23 24 6 ^{.9}	0 ^{.0705188}	18 13 ^{.1}	46 47 0 ^{.5}	0 2 48 ^{.4}	0 ^{.1679351}
18	6 0 24 ^{.13}	23 25 30 ^{.0}	0 ^{.0681452}	18 11 ^{.5}	47 20 30 ^{.1}	0 1 43 ^{.4}	0 ^{.1683049}
19	6 2 43 ^{.33}	23 26 46 ^{.2}	0 ^{.0657499}	18 9 ^{.8}	47 53 56 ^{.4}	S. 0 0 38 ^{.5}	0 ^{.1686755}
20	6 5 1 ^{.54}	23 27 55 ^{.7}	0 ^{.0633323}	18 8 ^{.2}	48 27 19 ^{.3}	N. 0 0 26 ^{.2}	0 ^{.1690466}
21	6 7 18 ^{.75}	23 28 58 ^{.7}	0 ^{.0608922}	18 6 ^{.5}	49 0 38 ^{.7}	0 1 30 ^{.8}	0 ^{.1694185}
22	6 9 34 ^{.93}	23 29 55 ^{.3}	0 ^{.0584292}	18 4 ^{.8}	49 33 54 ^{.7}	0 2 35 ^{.3}	0 ^{.1697908}
23	6 11 50 ^{.06}	23 30 45 ^{.8}	0 ^{.0559430}	18 3 ^{.1}	50 7 7 ^{.3}	0 3 39 ^{.7}	0 ^{.1701637}
24	6 14 4 ^{.10}	23 31 30 ^{.5}	0 ^{.0534333}	18 1 ^{.4}	50 40 16 ^{.5}	0 4 44 ^{.0}	0 ^{.1705372}
25	6 16 17 ^{.03}	23 32 9 ^{.4}	0 ^{.0509002}	17 59 ^{.7}	51 13 22 ^{.3}	0 5 48 ^{.1}	0 ^{.1709111}
26	6 18 28 ^{.81}	23 32 42 ^{.8}	0 ^{.0483434}	17 57 ^{.9}	51 46 24 ^{.6}	0 6 52 ^{.1}	0 ^{.1712855}
27	6 20 39 ^{.42}	23 33 10 ^{.9}	0 ^{.0457630}	17 56 ^{.1}	52 19 23 ^{.6}	0 7 55 ^{.9}	0 ^{.1716602}
28	6 22 48 ^{.82}	23 33 33 ^{.9}	0 ^{.0431589}	17 54 ^{.3}	52 52 19 ^{.0}	0 8 59 ^{.6}	0 ^{.1720353}
29	6 24 57 ^{.00}	23 33 52 ^{.0}	0 ^{.0405309}	17 52 ^{.5}	53 25 11 ^{.2}	0 10 3 ^{.2}	0 ^{.1724108}
30	6 27 3 ^{.92}	23 34 5 ^{.5}	0 ^{.0378790}	17 50 ^{.7}	53 57 59 ^{.9}	0 11 6 ^{.6}	0 ^{.1727865}
31	6 29 9 ^{.56}	N. 23 34 14 ^{.6}	0 ^{.0352030}	17 48 ^{.8}	54 30 45 ^{.1}	N. 0 12 9 ^{.8}	0 ^{.1731624}

OCTOBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	L Rad	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	N	
	^h ^m ^s	^o ['] ["]		^h ^m	^o ['] ["]	^o ['] ["]		
1	6 29 9.56	N.23 34 14.6	0.0352030	17 48.8	54 30 45.1	N.0 12 9.8	0.17	
2	6 31 13.88	23 34 19.5	.0325031	17 46.9	55 3 27.0	0 13 12.8	.17	
3	6 33 16.85	23 34 20.6	.0297792	17 45.0	55 36 5.5	0 14 15.6	.17	
4	6 35 18.45	23 34 17.9	.0270314	17 43.1	56 8 40.6	0 15 18.3	.17	
5	6 37 18.65	23 34 11.8	.0242600	17 41.1	56 41 12.3	0 16 20.8	.17	
6	6 39 17.41	23 34 2.4	.0214650	17 39.2	57 13 40.6	0 17 23.1	.17	
7	6 41 14.71	23 33 50.1	.0186465	17 37.2	57 46 5.6	0 18 25.2	.17	
8	6 43 10.53	23 33 35.2	.0158046	17 35.2	58 18 27.2	0 19 27.0	.17	
9	6 45 4.83	23 33 17.9	.0129392	17 33.1	58 50 45.4	0 20 28.7	.17	
10	6 46 57.59	23 32 58.2	.0100505	17 31.0	59 23 0.3	0 21 30.1	.17	
11	6 48 48.80	23 32 36.7	.0071385	17 28.9	59 55 11.9	0 22 31.3	.17	
12	6 50 38.42	23 32 13.6	.0042034	17 26.8	60 27 20.0	0 23 32.3	.17	
13	6 52 26.43	23 31 49.1	.0012450	17 24.6	60 59 24.9	0 24 33.1	.17	
14	6 54 12.80	23 31 23.4	.9982637	17 22.4	61 31 26.5	0 25 33.6	.17	
15	6 55 57.48	23 30 56.9	.9952593	17 20.2	62 3 24.8	0 26 33.9	.17	
16	6 57 40.45	23 30 29.9	.9922319	17 18.0	62 35 19.7	0 27 33.9	.17	
17	6 59 21.67	23 30 2.6	.9891815	17 15.7	63 7 11.4	0 28 33.7	.17	
18	7 1 1.10	23 29 35.2	.9861082	17 13.4	63 38 59.8	0 29 33.3	.17	
19	7 2 38.71	23 29 8.1	.9830121	17 11.0	64 10 44.9	0 30 32.6	.17	
20	7 4 14.45	23 28 41.5	.9798932	17 8.7	64 42 26.6	0 31 31.6	.18	
21	7 5 48.30	23 28 15.8	.9767520	17 6.3	65 14 5.2	0 32 30.4	.18	
22	7 7 20.21	23 27 51.2	.9735886	17 3.9	65 45 40.5	0 33 28.9	.18	
23	7 8 50.14	23 27 28.2	.9704032	17 1.4	66 17 12.6	0 34 27.2	.18	
24	7 10 18.03	23 27 6.9	.9671961	16 58.9	66 48 41.5	0 35 25.2	.18	
25	7 11 43.85	23 26 47.8	.9639678	16 56.4	67 20 7.1	0 36 22.9	.18	
26	7 13 7.55	23 26 31.0	.9607187	16 53.8	67 51 29.5	0 37 20.3	.18	
27	7 14 29.08	23 26 17.1	.9574496	16 51.2	68 22 48.7	0 38 17.5	.18	
28	7 15 48.39	23 26 6.1	.9541610	16 48.5	68 54 4.8	0 39 14.3	.18	
29	7 17 5.43	23 25 58.3	.9508539	16 45.8	69 25 17.7	0 40 10.8	.18	
30	7 18 20.16	23 25 54.2	.9475289	16 43.1	69 56 27.4	0 41 7.0	.18	
31	7 19 32.52	23 25 53.9	.9441869	16 40.4	70 27 33.9	0 42 3.0	.18	
32	7 20 42.47	N.23 25 58.0	.9408287	16 37.6	70 58 37.3	N.0 42 58.6	0.18	

NOVEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^h ^m ^s 7 20 42.47	[°] ['] ["] N.23 25 58.09	[°] 9.9408287	^h ^m 16 37.6	[°] ['] ["] 70 58 37.3	[°] ['] ["] N.0 42 58.6	[°] 0.1847556
7 21 49.96	23 26 6.6	.9374555	16 34.8	71 29 37.6	0 43 53.9	.1851221
7 22 54.94	23 26 20.1	.9340684	16 31.9	72 0 34.7	0 44 48.9	.1854877
7 23 57.38	23 26 38.8	.9306682	16 29.0	72 31 28.6	0 45 43.7	.1858524
7 24 57.23	23 27 2.8	.9272561	16 26.0	73 2 19.6	0 46 38.1	.1862164
7 25 54.42	23 27 32.4	.9238338	16 23.0	73 33 7.5	0 47 32.2	.1865794
7 26 48.93	23 28 8.1	.9204023	16 20.0	74 3 52.3	0 48 26.0	.1869415
7 27 40.73	23 28 50.0	.9169630	16 16.9	74 34 34.1	0 49 19.5	.1873026
7 28 29.76	23 29 38.3	.9135171	16 13.7	75 5 12.8	0 50 12.6	.1876628
7 29 15.96	23 30 33.2	.9100660	16 10.5	75 35 48.5	0 51 5.4	.1880220
7 29 59.28	23 31 35.2	.9066113	16 7.3	76 6 21.1	0 51 57.9	.1883803
7 30 39.70	23 32 44.5	.9031544	16 4.0	76 36 50.7	0 52 50.1	.1887376
7 31 17.15	23 34 1.2	.8996969	16 0.6	77 7 17.4	0 53 41.9	.1890938
7 31 51.57	23 35 25.3	.8962406	15 57.2	77 37 41.0	0 54 33.4	.1894489
7 32 22.91	23 36 57.4	.8927871	15 53.7	78 8 1.7	0 55 24.5	.1898029
7 32 51.15	23 38 37.5	.8893383	15 50.2	78 38 19.5	0 56 15.3	.1901558
7 33 16.22	23 40 25.7	.8858961	15 46.6	79 8 34.3	0 57 5.8	.1905076
7 33 38.06	23 42 22.4	.8824628	15 43.0	79 38 46.1	0 57 55.9	.1908582
7 33 56.61	23 44 27.3	.8790405	15 39.3	80 8 55.1	0 58 45.7	.1912076
7 34 11.84	23 46 40.8	.8756317	15 35.6	80 39 1.2	0 59 35.1	.1915557
7 34 23.68	23 49 3.1	.8722389	15 31.8	81 9 4.5	1 0 24.2	.1919025
7 34 32.07	23 51 34.4	.8688647	15 28.0	81 39 4.9	1 1 12.9	.1922481
7 34 36.98	23 54 14.6	.8655121	15 24.1	82 9 2.4	1 2 1.3	.1925923
7 34 38.36	23 57 3.8	.8621845	15 20.2	82 38 57.1	1 2 49.3	.1929352
7 34 36.15	24 0 1.8	.8588848	15 16.2	83 8 49.0	1 3 36.9	.1932769
7 34 30.32	24 3 8.9	.8556164	15 12.1	83 38 38.0	1 4 24.2	.1936171
7 34 20.84	24 6 24.7	.8523825	15 8.0	84 8 24.3	1 5 11.1	.1939561
7 34 7.66	24 9 49.3	.8491873	15 3.8	84 38 8.0	1 5 57.6	.1942936
7 33 50.77	24 13 22.7	.8460345	14 59.6	85 7 48.8	1 6 43.8	.1946298
7 33 30.15	24 17 4.4	.8429282	14 55.3	85 37 26.9	1 7 29.6	.1949646
7 33 5.77	N.24 20 54.39	.8398723	14 50.9	86 7 2.4	N.1 8 15.0	0.1952979

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	7 33 5.77	N.24 20 54.3	9.8398723	14 50.9	86 7 2.4	N.1 8 15.0	0.195	
2	7 32 37.64	24 24 52.1	8368709	14 46.5	86 36 35.0	1 9 0.0	.195	
3	7 32 5.76	24 28 57.6	8339283	14 42.0	87 6 5.1	1 9 44.7	.195	
4	7 31 30.13	24 33 10.5	8310484	14 37.4	87 35 32.4	1 10 29.0	.196	
5	7 30 50.76	24 37 30.3	8282357	14 32.8	88 4 57.1	1 11 12.9	.196	
6	7 30 7.66	24 41 56.9	8254945	14 28.1	88 34 19.2	1 11 56.4	.196	
7	7 29 20.86	24 46 29.5	8228292	14 23.4	89 3 38.6	1 12 39.6	.197	
8	7 28 30.42	24 51 7.9	8202435	14 18.6	89 32 55.5	1 13 22.4	.197	
9	7 27 36.39	24 55 51.4	8177420	14 13.7	90 2 9.7	1 14 4.8	.197	
10	7 26 38.80	25 0 39.5	8153294	14 8.8	90 31 21.4	1 14 46.8	.198	
11	7 25 37.71	25 5 31.5	8130100	14 3.8	91 0 30.6	1 15 28.5	.198	
12	7 24 33.16	25 10 26.9	8107878	13 58.8	91 29 37.2	1 16 9.8	.198	
13	7 23 25.23	25 15 25.1	8086668	13 53.7	91 58 41.3	1 16 50.6	.199	
14	7 22 14.02	25 20 25.6	8066512	13 48.6	92 27 42.8	1 17 31.1	.199	
15	7 20 59.61	25 25 27.4	8047452	13 43.4	92 56 42.0	1 18 11.2	.199	
16	7 19 42.10	25 30 29.9	8029527	13 38.2	93 25 38.6	1 18 50.9	.200	
17	7 18 21.59	25 35 32.3	8012776	13 32.9	93 54 32.8	1 19 30.2	.200	
18	7 16 58.19	25 40 34.0	7997238	13 27.6	94 23 24.4	1 20 9.2	.200	
19	7 15 32.02	25 45 34.4	7982956	13 22.2	94 52 13.8	1 20 47.7	.201	
20	7 14 3.22	25 50 32.5	7969971	13 16.8	95 21 0.7	1 21 25.8	.201	
21	7 12 31.93	25 55 27.5	7958317	13 11.3	95 49 45.2	1 22 3.5	.201	
22	7 10 58.32	26 0 18.7	7948025	13 5.8	96 18 27.4	1 22 40.9	.201	
23	7 9 22.56	26 5 5.5	7939124	13 0.3	96 47 7.2	1 23 17.9	.201	
24	7 7 44.80	26 9 47.0	7931646	12 54.7	97 15 44.7	1 23 54.5	.201	
25	7 6 5.23	26 14 22.5	7925621	12 49.1	97 44 19.9	1 24 30.7	.201	
26	7 4 24.09	26 18 51.3	7921074	12 43.5	98 12 52.9	1 25 6.4	.201	
27	7 2 41.57	26 23 12.8	7918029	12 37.9	98 41 23.5	1 25 41.7	.201	
28	7 0 57.86	26 27 26.2	7916503	12 32.2	99 9 52.0	1 26 16.6	.201	
29	6 59 13.17	26 31 31.0	7916510	12 26.5	99 38 18.1	1 26 51.1	.201	
30	6 57 27.75	26 35 26.7	7918062	12 20.8	100 6 42.1	1 27 25.3	.201	
31	6 55 41.85	N.26 39 12.9	9.7921166	12 15.1	100 35 3.8	N.1 27 59.1	0.204	

MEAN TIME.

1834.		Geocentric.				Heliocentric.		
		Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
		Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
Jan.	0	^h 21 ^m 38 ^s 5	S. 18 51	0.4746	^h 2 ^m 59 ^s 7	336 51	S. 5 45	0.3684
	4	21 46 0	18 15	0.4799	2 51 3	337 58	5 50	0.3691
	8	21 53 4	17 38	0.4849	2 43 0	339 4	5 54	0.3698
	12	22 1 0	17 0	0.4896	2 34 8	340 10	5 59	0.3706
	16	22 8 4	16 22	0.4941	2 26 4	341 16	6 3	0.3713
	20	22 15 8	15 42	0.4983	2 18 1	342 21	6 7	0.3720
	24	22 23 2	15 1	0.5023	2 9 7	343 27	6 12	0.3727
	28	22 30 6	14 20	0.5060	2 1 4	344 32	6 16	0.3735
	Febr. 1	22 37 9	13 39	0.5095	1 52 9	345 37	6 19	0.3742
	5	22 45 2	12 56	0.5127	1 44 4	346 42	6 23	0.3749
Febr.	9	22 52 5	12 13	0.5157	1 36 0	347 47	6 27	0.3756
	13	22 59 8	11 30	0.5184	1 27 5	348 51	6 30	0.3763
	17	23 7 1	10 47	0.5209	1 19 1	349 55	6 33	0.3770
	21	23 14 3	10 3	0.5231	1 10 5	351 0	6 36	0.3777
	25	23 21 5	9 19	0.5251	1 2 0	352 3	6 39	0.3784
	March 1	23 28 7	8 34	0.5268	0 53 4	353 7	6 42	0.3791
	5	23 35 8	7 50	0.5283	0 44 7	354 11	6 45	0.3798
	9	23 42 9	7 6	0.5296	0 36 1	355 14	6 47	0.3805
	13	23 50 0	6 21	0.5307	0 27 4	356 17	6 49	0.3812
	17	23 57 1	5 37	0.5315	0 18 8	357 20	6 52	0.3818
March	21	0 4 1	4 53	0.5320	0 10 0	358 23	6 54	0.3825
	25	0 11 1	4 9	0.5324	{ 0 1 3 } 23 50 1	359 25	6 56	0.3832
	29	0 18 0	3 25	0.5325	23 50 1	0 28	6 57	0.3839
	April 2	0 25 0	2 42	0.5323	23 41 4	1 30	6 59	0.3845
	6	0 31 9	1 59	0.5320	23 32 5	2 32	7 1	0.3852
	10	0 38 8	1 17	0.5314	23 23 7	3 34	7 2	0.3858
	14	0 45 7	S. 0 35	0.5305	23 14 8	4 35	7 3	0.3865
	18	0 52 5	N. 0 7	0.5295	23 5 8	5 37	7 4	0.3871
	22	0 59 3	0 47	0.5282	22 56 9	6 38	7 5	0.3877
	26	1 6 1	1 28	0.5267	22 47 9	7 39	7 6	0.3883
April	30	1 12 9	2 7	0.5249	22 38 9	8 40	7 7	0.3890
	May 4	1 19 6	N. 2 46	0.5229	22 29 9	9 41	S. 7 7	0.3896

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.		Noon.	Noon.	No
May	4	^h 1 ^m 19 ^s 6	N. 2° 46'	0.5229	^h 22 ^m 29 ^s 9	[°] 9 41' S.	7 7 0.3
	8	1 26.3	3 24	0.5207	22 20.8	10 42	7 8 0.3
	12	1 33.0	4 1	0.5182	22 11.7	11 42	7 8 0.3
	16	1 39.6	4 37	0.5155	22 2.6	12 42	7 8 0.3
	20	1 46.2	5 12	0.5125	21 53.4	13 43	7 8 0.3
	24	1 52.8	5 47	0.5093	21 44.2	14 43	7 8 0.3
	28	1 59.3	6 20	0.5059	21 35.0	15 42	7 8 0.3
June	1	2 5.8	6 52	0.5022	21 25.7	16 42	7 7 0.3
	5	2 12.3	7 23	0.4983	21 16.5	17 42	7 7 0.3
	9	2 18.7	7 53	0.4941	21 7.1	18 41	7 6 0.3
	13	2 25.0	8 22	0.4897	20 57.6	19 40	7 5 0.3
	17	2 31.2	8 50	0.4850	20 48.1	20 39	7 5 0.3
	21	2 37.4	9 16	0.4801	20 38.5	21 38	7 4 0.3
	25	2 43.5	9 42	0.4749	20 28.8	22 37	7 2 0.3
July	29	2 49.5	10 6	0.4694	20 19.0	23 36	7 1 0.3
	3	2 55.5	10 28	0.4637	20 9.3	24 34	7 0 0.3
	7	3 1.5	10 50	0.4577	19 59.5	25 32	6 59 0.3
	11	3 7.2	11 10	0.4515	19 49.4	26 31	6 57 0.3
	15	3 12.8	11 28	0.4450	19 39.2	27 29	6 55 0.3
	19	3 18.3	11 46	0.4382	19 29.0	28 27	6 53 0.3
	23	3 23.7	12 2	0.4312	19 18.6	29 25	6 52 0.4
August	27	3 28.9	12 16	0.4239	19 8.0	30 22	6 49 0.4
	31	3 34.0	12 30	0.4163	18 57.3	31 20	6 47 0.4
	4	3 39.0	12 41	0.4084	18 46.5	32 17	6 45 0.4
	8	3 43.7	12 52	0.4003	18 35.4	33 15	6 43 0.4
	12	3 48.2	13 1	0.3920	18 24.1	34 12	6 40 0.4
	16	3 52.5	13 9	0.3834	18 12.7	35 9	6 38 0.4
	20	3 56.6	13 15	0.3745	18 1.0	36 6	6 35 0.4
Sept.	24	4 0.5	13 20	0.3655	17 49.0	37 3	6 32 0.4
	28	4 4.0	13 24	0.3562	17 36.7	38 0	6 29 0.4
	1	4 7.2	13 27	0.3467	17 24.2	38 56	6 26 0.4
	5	4 10.2	N. 13 28	0.3370	17 11.4	39 53	S. 6 23 0.4

MEAN TIME.

834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
Sept. 5	^h 4 ^m 10 ^s 2	N. 13 28	0 3370	^h 17 ^m 11 ^s 4	^o 39 53	S. 6 23	0 4044
9	4 12 8	13 28	0 3272	16 58 1	40 50	6 20	0 4047
13	4 15 0	13 27	0 3173	16 44 5	41 46	6 17	0 4050
17	4 16 8	13 25	0 3073	16 30 6	42 42	6 14	0 4053
21	4 18 4	13 22	0 2973	16 16 3	43 38	6 10	0 4056
25	4 19 4	13 18	0 2874	16 1 5	44 35	6 6	0 4059
29	4 20 0	13 12	0 2775	15 46 3	45 31	6 3	0 4062
Oct. 3	4 20 1	13 6	0 2678	15 30 7	46 27	5 59	0 4065
7	4 19 8	13 0	0 2583	15 14 5	47 23	5 55	0 4067
11	4 18 9	12 52	0 2492	14 57 8	48 18	5 51	0 4070
15	4 17 6	12 44	0 2405	14 40 7	49 14	5 47	0 4072
19	4 15 8	12 35	0 2324	14 23 2	50 10	5 43	0 4075
23	4 13 6	12 27	0 2249	14 5 2	51 5	5 39	0 4077
27	4 10 9	12 17	0 2182	13 46 7	52 1	5 35	0 4079
31	4 7 8	12 8	0 2123	13 27 8	52 56	5 31	0 4081
Nov. 4	4 4 3	11 59	0 2075	13 8 6	53 51	5 26	0 4083
8	4 0 6	11 51	0 2037	12 49 2	54 47	5 22	0 4085
12	3 56 6	11 43	0 2011	12 29 5	55 42	5 17	0 4086
16	3 52 5	11 35	0 1997	12 9 6	56 37	5 12	0 4088
20	3 48 2	11 29	0 1995	11 49 6	57 32	5 8	0 4089
24	3 44 0	11 24	0 2006	11 29 7	58 27	5 3	0 4091
28	3 39 7	11 20	0 2029	11 9 8	59 22	4 58	0 4092
Dec. 2	3 35 7	11 18	0 2065	10 50 1	60 17	4 53	0 4093
6	3 32 0	11 18	0 2112	10 30 7	61 12	4 48	0 4094
10	3 28 5	11 19	0 2170	10 11 5	62 7	4 43	0 4095
14	3 25 3	11 23	0 2237	9 52 7	63 2	4 38	0 4096
18	3 22 6	11 28	0 2313	9 34 3	63 57	4 32	0 4097
22	3 20 3	11 35	0 2396	9 16 3	64 52	4 27	0 4098
26	3 18 5	11 44	0 2486	8 58 9	65 47	4 22	0 4098
30	3 17 0	11 55	0 2581	8 41 7	66 41	4 16	0 4099
31	3 16 7	N. 11 58	0 2605	8 37 4	66 55	S. 4 15	0 4099

EPHEMERIS OF VESTA FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.	Right Ascension.	Declination.	Logarithm of the Distance from the	
			Earth.	Sun.
October	19	^{h m s} 4 15 34·16 N. ^{° ' "} 12 34 13·1	0·23141	0·40749
	20	4 15 2·26 12 32 0·8	0·22950	0·40755
	21	4 14 28·66 12 29 47·4	0·22763	0·40760
	22	4 13 53·38 12 27 33·1	0·22580	0·40766
	23	4 13 16·43 12 25 18·0	0·22402	0·40771
	24	4 12 37·83 12 23 2·2	0·22229	0·40776
	25	4 11 57·61 12 20 45·9	0·22060	0·40782
	26	4 11 15·81 12 18 29·1	0·21897	0·40787
	27	4 10 32·45 12 16 12·1	0·21740	0·40792
	28	4 9 47·57 12 13 55·1	0·21588	0·40797
November	29	4 9 1·23 12 11 38·3	0·21441	0·40802
	30	4 8 13·45 12 9 21·8	0·21301	0·40807
	31	4 7 24·28 12 7 5·8	0·21167	0·40812
	1	4 6 33·77 12 4 50·4	0·21039	0·40817
	2	4 5 41·98 12 2 35·9	0·20917	0·40822
	3	4 4 48·95 12 0 22·5	0·20802	0·40826
	4	4 3 54·76 11 58 10·4	0·20694	0·40831
	5	4 2 59·45 11 55 59·8	0·20592	0·40835
	6	4 2 3·09 11 53 50·8	0·20497	0·40840
	7	4 1 5·74 11 51 43·7	0·20410	0·40844
	8	4 0 7·47 11 49 38·7	0·20330	0·40849
	9	3 59 8·35 11 47 36·0	0·20257	0·40853
	10	3 58 8·44 11 45 35·7	0·20191	0·40857
	11	3 57 7·81 11 43 38·1	0·20133	0·40861
	12	3 56 6·54 11 41 43·3	0·20082	0·40865
	13	3 55 4·69 11 39 51·6	0·20040	0·40869
	14	3 54 2·32 11 38 3·1	0·20004	0·40873
	15	3 52 59·52 11 36 18·0	0·19977	0·40877
	16	3 51 56·36 11 34 36·3	0·19957	0·40881
	17	3 50 52·90 11 32 58·8	0·19945	0·40885
	18	3 49 49·22 11 31 25·1	0·19941	0·40889
8	19	3 48 45·39 N. 11 29 55·5	0·19945	0·40892

EPHEMERIS OF VESTA FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.	Right Ascension.	Declination.	Logarithm of the Distance from the	
			Earth.	Sun.
	^h ^m ^s	[°] ['] ["]		
November 19	3 48 45.39	N. 11 29 55.5	0.19945	0.40892
20	3 47 41.51	11 28 30.2	0.19957	0.40896
21	3 46 37.63	11 27 9.5	0.19976	0.40900
22	3 45 33.85	11 25 53.6	0.20004	0.40903
23	3 44 30.23	11 24 42.6	0.20039	0.40906
24	3 43 26.84	11 23 36.6	0.20082	0.40910
25	3 42 23.75	11 22 35.8	0.20133	0.40913
26	3 41 21.06	11 21 40.4	0.20192	0.40916
27	3 40 18.83	11 20 50.7	0.20258	0.40919
28	3 39 17.14	11 20 6.8	0.20332	0.40922
29	3 38 16.06	11 19 28.7	0.20414	0.40925
30	3 37 15.67	11 18 56.7	0.20503	0.40928
December 1	3 36 16.04	11 18 30.9	0.20599	0.40931
2	3 35 17.24	11 18 11.4	0.20703	0.40934
3	3 34 19.35	11 17 58.6	0.20814	0.40936
4	3 33 22.41	11 17 52.4	0.20932	0.40939
5	3 32 26.50	11 17 52.8	0.21056	0.40942
6	3 31 31.67	11 18 0.0	0.21188	0.40944
7	3 30 37.99	11 18 14.2	0.21326	0.40947
8	3 29 45.49	11 18 35.3	0.21470	0.40949
9	3 28 54.24	11 19 3.5	0.21621	0.40951
10	3 28 4.28	11 19 38.8	0.21778	0.40954
11	3 27 15.66	11 20 21.1	0.21940	0.40956
12	3 26 28.42	11 21 10.7	0.22109	0.40958
13	3 25 42.60	11 22 7.5	0.22283	0.40960
14	3 24 58.22	11 23 11.4	0.22462	0.40962
15	3 24 15.34	11 24 22.4	0.22647	0.40964
16	3 23 33.98	11 25 40.7	0.22837	0.40966
17	3 22 54.17	11 27 6.1	0.23031	0.40968
18	3 22 15.93	11 28 38.8	0.23230	0.40970
19	3 21 39.29	11 30 18.6	0.23434	0.40971
20	3 21 4.30	N. 11 32 5.6	0.23642	0.40973

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No
Jan. 0	^h 17 ^m 40 ^s 2	S. 13 16	0 6192	^h 22 ^m 59 ^s 1	^o 260 35	N. 13 2	0 3
4	17 45 9	13 16	0 6170	22 49 0	261 12	13 2	0 3
8	17 51 6	13 15	0 6146	22 39 0	261 49	13 2	0 3
12	17 57 3	13 13	0 6118	22 28 9	262 26	13 2	0 3
16	18 3 0	13 10	0 6088	22 18 8	263 3	13 2	0 3
20	18 8 6	13 6	0 6054	22 8 7	263 40	13 1	0 3
24	18 14 2	13 0	0 6018	21 58 5	264 17	13 1	0 3
28	18 19 7	12 54	0 5979	21 48 3	264 54	13 0	0 3
Feb. 1	18 25 2	12 46	0 5937	21 38 0	265 32	13 0	0 3
5	18 30 6	12 37	0 5892	21 27 6	266 9	12 59	0 3
9	18 35 9	12 28	0 5844	21 17 2	266 47	12 58	0 3
13	18 41 2	12 17	0 5794	21 6 7	267 25	12 57	0 3
17	18 46 4	12 5	0 5740	20 56 1	268 3	12 56	0 3
21	18 51 5	11 52	0 5684	20 45 4	268 41	12 55	0 3
25	18 56 5	11 38	0 5625	20 34 7	269 19	12 54	0 3
March 1	19 1 4	11 24	0 5563	20 23 8	269 58	12 53	0 3
5	19 6 1	11 8	0 5498	20 12 7	270 36	12 51	0 3
9	19 10 7	10 52	0 5430	20 1 5	271 15	12 50	0 3
13	19 15 1	10 35	0 5360	19 50 1	271 54	12 48	0 3
17	19 19 4	10 17	0 5287	19 38 7	272 33	12 47	0 3
21	19 23 6	9 59	0 5211	19 27 1	273 12	12 45	0 3
25	19 27 6	9 40	0 5132	19 15 3	273 52	12 43	0 3
29	19 31 5	9 20	0 5051	19 3 4	274 31	12 41	0 3
April 2	19 35 2	9 1	0 4968	18 51 3	275 11	12 39	0 3
6	19 38 6	8 41	0 4882	18 38 9	275 51	12 37	0 3
10	19 41 8	8 20	0 4793	18 26 4	276 31	12 34	0 3
14	19 44 9	8 0	0 4703	18 13 7	277 11	12 32	0 3
18	19 47 7	7 40	0 4610	18 0 7	277 52	12 29	0 3
22	19 50 2	7 19	0 4515	17 47 4	278 33	12 27	0 3
26	19 52 5	6 59	0 4419	17 33 9	279 13	12 24	0 3
30	19 54 6	6 39	0 4321	17 20 2	279 54	12 21	0 3
May 4	19 56 3	S. 6 20	0 4222	17 6 2	280 36	N. 12 18	0 3

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
May 4	^h 19 ^m 56 ^s 3	S. 6 20	0 4222	^h 17 ^m 6 ^s 2	^o 280 ⁱ 36	N. 12 18	0 4825
8	19 57 8	6 1	0 4122	16 51 9	281 17	12 15	0 4813
12	19 58 9	5 42	0 4021	16 37 2	281 59	12 12	0 4801
16	19 59 7	5 25	0 3919	16 22 2	282 40	12 8	0 4790
20	20 0 3	5 9	0 3818	16 7 0	283 23	12 5	0 4778
24	20 0 4	4 54	0 3718	15 51 3	284 5	12 1	0 4765
28	20 0 1	4 40	0 3619	15 35 2	284 47	11 57	0 4753
June 1	19 59 6	4 27	0 3521	15 18 9	285 30	11 53	0 4741
5	19 58 7	4 17	0 3426	15 2 3	286 13	11 49	0 4728
9	19 57 5	4 8	0 3334	14 45 3	286 56	11 45	0 4715
13	19 55 8	4 1	0 3245	14 27 8	287 40	11 41	0 4702
17	19 53 8	3 57	0 3162	14 10 1	288 23	11 37	0 4689
21	19 51 6	3 55	0 3084	13 52 1	289 7	11 32	0 4676
25	19 49 0	3 55	0 3011	13 33 7	289 51	11 27	0 4662
29	19 46 1	3 58	0 2946	13 15 1	290 36	11 22	0 4649
July 3	19 43 0	4 4	0 2889	12 56 3	291 20	11 17	0 4635
7	19 39 7	4 12	0 2840	12 37 3	292 5	11 12	0 4621
11	19 36 3	4 23	0 2799	12 18 1	292 51	11 7	0 4607
15	19 32 8	4 36	0 2769	11 58 9	293 36	11 2	0 4592
19	19 29 3	4 52	0 2748	11 39 7	294 22	10 56	0 4578
23	19 25 7	5 10	0 2736	11 20 4	295 8	10 50	0 4563
27	19 22 3	5 31	0 2735	11 1 3	295 54	10 44	0 4549
31	19 19 0	5 53	0 2743	10 42 4	296 41	10 38	0 4534
Aug. 4	19 15 9	6 16	0 2761	10 23 6	297 27	10 32	0 4518
8	19 13 0	6 41	0 2787	10 5 0	298 15	10 26	0 4503
12	19 10 4	7 7	0 2822	9 46 7	299 2	10 19	0 4488
16	19 8 2	7 34	0 2865	9 28 8	299 50	10 13	0 4472
20	19 6 2	8 1	0 2915	9 11 2	300 38	10 6	0 4456
24	19 4 7	8 28	0 2971	8 54 0	301 26	9 59	0 4441
28	19 3 5	8 55	0 3032	8 37 1	302 15	9 52	0 4425
Sept. 1	19 2 8	9 22	0 3097	8 20 7	303 4	9 44	0 4408
5	19 2 5	S. 9 49	0 3167	8 4 7	303 53	N. 9 37	0 4392

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. Rad. V.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
Sept. 5	^h 19 ^m 2 ^s 5	S. 9 49	0 3167	^h 8 ^m 4 ^s 7	^o 303 ⁱ 53	N. 9 37	0 43
9	19 2 7	10 15	0 3240	7 49 2	304 43	9 29	0 43
13	19 3 2	10 40	0 3315	7 34 0	305 33	9 21	0 43
17	19 4 3	11 4	0 3392	7 19 4	306 23	9 13	0 43
21	19 5 6	11 27	0 3470	7 5 0	307 14	9 5	0 43
25	19 7 4	11 49	0 3549	6 51 1	308 5	8 57	0 43
29	19 9 5	12 10	0 3628	6 37 5	308 57	8 48	0 42
Oct. 3	19 12 0	12 29	0 3706	6 24 3	309 49	8 39	0 42
7	19 14 9	12 47	0 3784	6 11 5	310 41	8 30	0 42
11	19 18 0	13 3	0 3861	5 58 8	311 33	8 21	0 42
15	19 21 6	13 18	0 3936	5 46 7	312 26	8 12	0 42
19	19 25 4	13 31	0 4011	5 34 8	313 20	8 2	0 42
23	19 29 5	13 43	0 4083	5 23 2	314 14	7 52	0 41
27	19 33 8	13 53	0 4153	5 11 7	315 8	7 42	0 41
31	19 38 5	14 1	0 4222	5 0 7	316 3	7 32	0 41
Nov. 4	19 43 4	14 8	0 4288	4 49 9	316 58	7 22	0 41
8	19 48 6	14 13	0 4352	4 39 3	317 53	7 11	0 41
12	19 53 9	14 16	0 4414	4 28 9	318 49	7 1	0 40
16	19 59 4	14 17	0 4473	4 18 6	319 45	6 50	0 40
20	20 5 2	14 16	0 4530	4 8 7	320 42	6 39	0 40
24	20 11 1	14 14	0 4584	3 58 8	321 39	6 27	0 40
28	20 17 1	14 10	0 4636	3 49 1	322 37	6 16	0 40
Dec. 2	20 23 3	14 4	0 4686	3 39 6	323 35	6 4	0 39
6	20 29 7	13 57	0 4732	3 30 2	324 34	5 52	0 39
10	20 36 2	13 47	0 4776	3 20 9	325 33	5 40	0 39
14	20 42 8	13 36	0 4817	3 11 8	326 33	5 27	0 39
18	20 49 5	13 23	0 4856	3 2 7	327 33	5 15	0 39
22	20 56 3	13 9	0 4892	2 53 8	328 34	5 2	0 38
26	21 3 3	12 53	0 4925	2 45 0	329 35	4 49	0 38
30	21 10 3	12 36	0 4956	2 36 3	330 36	4 36	0 38
31	21 12 1	S. 12 31	0 4963	2 34 1	330 52	N. 4 32	0 38

EPHEMERIS OF JUNO FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.		Right Ascension.	Declination.	Logarithm of the Distance from the	
				Earth.	Sun.
		^h ^m ^s	[°] ['] ["]		
June	15	19 54 37·86	S. 3 58 19·5	0·31926	0·46939
	16	19 54 7·19	3 57 21·6	0·31720	0·46906
	17	19 53 35·31	3 56 32·6	0·31517	0·46873
	18	19 53 2·24	3 55 52·4	0·31318	0·46840
	19	19 52 28·00	3 55 21·1	0·31122	0·46806
	20	19 51 52·60	3 54 58·9	0·30930	0·46773
	21	19 51 16·07	3 54 46·1	0·30742	0·46740
	22	19 50 38·43	3 54 42·6	0·30558	0·46706
	23	19 49 59·70	3 54 48·3	0·30377	0·46672
	24	19 49 19·91	3 55 3·6	0·30201	0·46638
	25	19 48 39·08	3 55 28·5	0·30029	0·46605
	26	19 47 57·24	3 56 3·0	0·29861	0·46571
	27	19 47 14·43	3 56 47·3	0·29698	0·46537
	28	19 46 30·67	3 57 41·4	0·29540	0·46502
	29	19 45 46·00	3 58 45·3	0·29386	0·46468
	30	19 45 0·45	3 59 59·2	0·29237	0·46434
July	1	19 44 14·06	4 1 22·9	0·29093	0·46399
	2	19 43 26·87	4 2 56·6	0·28954	0·46365
	3	19 42 38·93	4 4 40·3	0·28820	0·46330
	4	19 41 50·27	4 6 34·1	0·28692	0·46295
	5	19 41 0·96	4 8 37·8	0·28569	0·46260
	6	19 40 11·03	4 10 51·4	0·28452	0·46225
	7	19 39 20·53	4 13 15·0	0·28340	0·46190
	8	19 38 29·51	4 15 48·5	0·28233	0·46155
	9	19 37 38·03	4 18 31·9	0·28133	0·46120
	10	19 36 46·12	4 21 25·0	0·28038	0·46084
	11	19 35 53·86	4 24 27·6	0·27949	0·46049
	12	19 35 1·29	4 27 39·8	0·27867	0·46013
	13	19 34 8·46	4 31 1·5	0·27789	0·45977
	14	19 33 15·43	4 34 32·6	0·27719	0·45942
	15	19 32 22·24	4 38 12·8	0·27654	0·45906
8	16	19 31 28·96	S. 4 42 2·0	0·27595	0·45870

EPHEMERIS OF JUNO FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.		Right Ascension.	Declination.	Logarithm of the Distance from the	
				Earth.	Sun.
July	16	^h 19 ^m 31 ^s 28·96	S. 4° 42' 2" 0	0·27595	0·45870
	17	19 30 35·63	4 46 0 0	0·27542	0·45834
	18	19 29 42·31	4 50 6 8	0·27495	0·45797
	19	19 28 49·05	4 54 22 1	0·27455	0·45761
	20	19 27 55·91	4 58 45 8	0·27421	0·45725
	21	19 27 2·93	5 3 17 8	0·27393	0·45688
	22	19 26 10·17	5 7 57 7	0·27371	0·45651
	23	19 25 17·68	5 12 45 4	0·27355	0·45615
	24	19 24 25·51	5 17 40 8	0·27345	0·45578
	25	19 23 33·72	5 22 43 6	0·27341	0·45541
	26	19 22 42·36	5 27 53 6	0·27344	0·45504
	27	19 21 51·48	5 33 10 7	0·27353	0·45467
	28	19 21 1·13	5 38 34 5	0·27367	0·45429
	29	19 20 11·37	5 44 4 8	0·27388	0·45392
	30	19 19 22·25	5 49 41 5	0·27414	0·45355
August	31	19 18 33·82	5 55 24 4	0·27447	0·45317
	1	19 17 46·13	6 1 13 0	0·27486	0·45280
	2	19 16 59·24	6 7 7 2	0·27530	0·45242
	3	19 16 13·19	6 13 6 7	0·27580	0·45204
	4	19 15 28·04	6 19 11 2	0·27635	0·45166
	5	19 14 43·82	6 25 20 4	0·27697	0·45128
	6	19 14 0·58	6 31 34 3	0·27763	0·45090
	7	19 13 18·37	6 37 52 3	0·27836	0·45052
	8	19 12 37·23	6 44 14 4	0·27913	0·45013
	9	19 11 57·20	6 50 40 1	0·27996	0·44975
	10	19 11 18·31	6 57 9 2	0·28083	0·44936
	11	19 10 40·60	7 3 41 4	0·28176	0·44898
	12	19 10 4·11	7 10 16 5	0·28274	0·44859
	13	19 9 28·87	7 16 54 2	0·28376	0·44820
	14	19 8 54·90	7 23 34 2	0·28483	0·44781
	15	19 8 22·24	7 30 16 4	0·28594	0·44742
	16	19 7 50·90	S. 7 37 0 3	0·28710	0·44703

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
Jan. 0	^h 9 ^m 4 ^s 9	S. 26° 40'	0 [.] 1601	^h 14 ^m 23 ^s 6	[°] 125 ['] 39	S. 26° 47'	0 [.] 3244
4	9 3 7	26 39	0 [.] 1508	14 6 7	127 7	26 14	0 [.] 3243
8	9 2 1	26 30	0 [.] 1419	13 49 3	128 35	25 39	0 [.] 3244
12	9 0 1	26 13	0 [.] 1334	13 31 5	130 1	25 3	0 [.] 3245
16	8 57 8	25 46	0 [.] 1254	13 13 5	131 27	24 27	0 [.] 3246
20	8 55 1	25 11	0 [.] 1180	12 55 0	132 52	23 50	0 [.] 3248
24	8 52 2	24 26	0 [.] 1115	12 36 4	134 16	23 12	0 [.] 3250
28	8 49 3	23 31	0 [.] 1058	12 17 8	135 39	22 34	0 [.] 3253
Feb. 1	8 46 2	22 27	0 [.] 1012	11 59 0	137 1	21 55	0 [.] 3256
5	8 43 2	21 13	0 [.] 0977	11 40 3	138 22	21 15	0 [.] 3260
9	8 40 3	19 52	0 [.] 0955	11 21 7	139 42	20 34	0 [.] 3265
13	8 37 6	18 22	0 [.] 0946	11 3 3	141 1	19 54	0 [.] 3270
17	8 35 2	16 47	0 [.] 0950	10 45 2	142 20	19 12	0 [.] 3275
21	8 33 2	15 6	0 [.] 0969	10 27 6	143 38	18 30	0 [.] 3281
25	8 31 5	13 21	0 [.] 1002	10 10 2	144 54	17 48	0 [.] 3287
March 1	8 30 3	11 35	0 [.] 1048	9 53 4	146 10	17 6	0 [.] 3294
5	8 29 6	9 47	0 [.] 1107	9 37 0	147 25	16 23	0 [.] 3301
9	8 29 5	8 0	0 [.] 1178	9 21 2	148 40	15 40	0 [.] 3309
13	8 29 8	6 14	0 [.] 1261	9 5 8	149 53	14 56	0 [.] 3317
17	8 30 6	4 32	0 [.] 1353	8 50 9	151 6	14 13	0 [.] 3326
21	8 31 9	2 53	0 [.] 1454	8 36 6	152 18	13 29	0 [.] 3335
25	8 33 7	S. 1 18	0 [.] 1561	8 22 6	153 29	12 45	0 [.] 3345
29	8 35 9	N. 0 12	0 [.] 1675	8 9 1	154 40	12 1	0 [.] 3354
April 2	8 38 6	1 36	0 [.] 1794	7 56 1	155 50	11 17	0 [.] 3365
6	8 41 7	2 55	0 [.] 1916	7 43 5	156 59	10 32	0 [.] 3375
10	8 45 1	4 9	0 [.] 2041	7 31 2	158 7	9 48	0 [.] 3386
14	8 48 9	5 16	0 [.] 2167	7 19 3	159 15	9 4	0 [.] 3398
18	8 53 1	6 19	0 [.] 2294	7 7 8	160 22	8 20	0 [.] 3410
22	8 57 7	7 15	0 [.] 2421	6 56 6	161 29	7 36	0 [.] 3422
26	9 2 5	8 7	0 [.] 2548	6 45 7	162 35	6 52	0 [.] 3434
30	9 7 5	8 53	0 [.] 2674	6 35 0	163 40	6 8	0 [.] 3447
May 4	9 12 7	N. 9 34	0 [.] 2798	6 24 4	164 45	S. 5 24	0 [.] 3460

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. Rad. V
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
May 4	^h 9 ^m 12.7	N. 9 34	0.2798	^h 6 ^m 24.4	^o 164 45	S. 5 24	0.34
8	9 18.1	10 11	0.2920	6 14.1	165 49	4 40	0.34
12	9 23.7	10 43	0.3040	6 4.0	166 53	3 57	0.34
16	9 29.5	11 11	0.3158	5 54.0	167 57	3 13	0.34
20	9 35.4	11 34	0.3273	5 44.2	168 59	2 30	0.34
24	9 41.5	11 54	0.3386	5 34.5	170 1	1 47	0.34
28	9 47.7	12 10	0.3495	5 25.0	171 3	1 4	0.34
June 1	9 54.0	12 23	0.3602	5 15.5	172 5	S. 0 22	0.34
5	10 0.4	12 33	0.3705	5 6.2	173 5	N. 0 20	0.34
9	10 6.9	12 40	0.3806	4 56.9	174 6	1 2	0.34
13	10 13.5	12 44	0.3903	4 47.8	175 6	1 43	0.34
17	10 20.1	12 46	0.3997	4 38.6	176 6	2 24	0.34
21	10 26.7	12 45	0.4089	4 29.6	177 5	3 5	0.34
25	10 33.4	12 41	0.4177	4 20.4	178 4	3 46	0.34
29	10 40.1	12 36	0.4262	4 11.4	179 3	4 26	0.34
July 3	10 46.9	12 28	0.4344	4 2.4	180 1	5 5	0.34
7	10 53.7	12 19	0.4423	3 53.5	180 59	5 45	0.34
11	11 0.6	12 8	0.4499	3 44.6	181 57	6 24	0.34
15	11 7.4	11 56	0.4572	3 35.6	182 54	7 2	0.34
19	11 14.3	11 42	0.4642	3 26.8	183 51	7 40	0.34
23	11 21.2	11 27	0.4709	3 17.9	184 48	8 18	0.34
27	11 28.1	11 10	0.4774	3 9.1	185 44	8 55	0.34
31	11 35.0	10 53	0.4835	3 0.2	186 41	9 32	0.34
Aug. 4	11 41.9	10 34	0.4894	2 51.3	187 37	10 8	0.34
8	11 48.8	10 15	0.4950	2 42.5	188 33	10 44	0.34
12	11 55.8	9 55	0.5003	2 33.7	189 28	11 20	0.34
16	12 2.7	9 35	0.5053	2 24.9	190 24	11 55	0.34
20	12 9.7	9 14	0.5100	2 16.1	191 19	12 29	0.34
24	12 16.6	8 52	0.5145	2 7.3	192 14	13 4	0.34
28	12 23.6	8 30	0.5187	1 58.5	193 9	13 37	0.34
Sept. 1	12 30.5	8 8	0.5226	1 49.7	194 3	14 10	0.34
5	1		0.5263	1 40.9	194 58	N. 14 43	0.34

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
Sept. 5	^h 12 ^m 37 ^s 5	N. 7° 46'	0.5263	^h 1 ^m 40 ^s 9	^o 194 ['] 58	N. 14° 43'	0.3958
9	12 44 4	7 24	0.5298	1 32 2	195 52	15 15	0.3975
13	12 51 4	7 1	0.5329	1 23 3	196 46	15 47	0.3992
17	12 58 3	6 39	0.5339	1 14 4	197 40	16 19	0.4010
21	13 5 3	6 17	0.5385	1 5 7	198 34	16 49	0.4027
25	13 12 3	5 56	0.5409	0 56 9	199 28	17 20	0.4044
29	13 19 3	5 34	0.5431	0 48 2	200 21	17 50	0.4061
Oct. 3	13 26 3	5 13	0.5450	0 39 4	201 15	18 19	0.4079
7	13 33 2	4 53	0.5466	0 30 6	202 8	18 48	0.4096
11	13 40 1	4 34	0.5480	0 21 7	203 1	19 16	0.4113
15	13 47 1	4 15	0.5492	0 12 9	203 54	19 44	0.4130
19	13 54 1	3 57	0.5501	0 4 2	204 47	20 12	0.4147
23	14 1 0	3 40	0.5508	* 23 53 1	205 40	20 39	0.4164
27	14 8 0	3 24	0.5512	23 44 3	206 33	21 5	0.4181
31	14 14 9	3 9	0.5514	23 35 4	207 26	21 31	0.4198
Nov. 4	14 21 8	2 55	0.5513	23 26 6	208 18	21 57	0.4214
8	14 28 7	2 42	0.5511	23 17 7	209 11	22 22	0.4231
12	14 35 6	2 31	0.5505	23 8 8	210 3	22 47	0.4248
16	14 42 4	2 21	0.5498	22 59 9	210 55	23 11	0.4264
20	14 49 2	2 12	0.5487	22 50 9	211 48	23 35	0.4281
24	14 56 0	2 5	0.5475	22 42 0	212 40	23 58	0.4297
28	15 2 8	1 59	0.5460	22 33 0	213 32	24 21	0.4313
Dec. 2	15 9 5	1 55	0.5443	22 24 0	214 24	24 43	0.4329
6	15 16 2	1 53	0.5424	22 14 9	215 16	25 5	0.4345
10	15 22 8	1 53	0.5402	22 5 7	216 8	25 26	0.4361
14	15 29 4	1 54	0.5378	21 56 5	216 59	25 47	0.4377
18	15 35 9	1 57	0.5352	21 47 3	217 51	26 8	0.4393
22	15 42 4	2 3	0.5324	21 38 0	218 43	26 28	0.4409
26	15 48 8	2 10	0.5293	21 28 6	219 34	26 47	0.4424
30	15 55 1	2 19	0.5260	21 19 1	220 26	27 6	0.4440
31	15 56 6	N. 2 22	0.5252	21 16 7	220 38	N. 27 11	0.4443

EPHEMERIS OF PALLAS FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.		Right Ascension.	Declination.	Logarithm of the Distance from		
				Earth.	Sun.	
January	8	^h 9 ^m 1 ^s 53·93	S. [°] 26 ['] 28 ["] 10·3	0·14080	0·32438	
	9	9 1 25·11	26 24 22·4	0·13863	0·32440	
	10	9 0 54·86	26 20 2·2	0·13650	0·32442	
	11	9 0 23·21	26 15 9·2	0·13440	0·32444	
	12	8 59 50·23	26 9 42·9	0·13233	0·32447	
	13	8 59 15·97	26 3 42·9	0·13029	0·32450	
	14	8 58 40·49	25 57 8·8	0·12829	0·32453	
	15	8 58 3·84	25 50 0·2	0·12633	0·32457	
	16	8 57 26·08	25 42 16·8	0·12441	0·32461	
	17	8 56 47·28	25 33 58·2	0·12253	0·32465	
	18	8 56 7·51	25 25 4·3	0·12070	0·32470	
	19	8 55 26·84	25 15 34·8	0·11891	0·32474	
	20	8 54 45·33	25 5 29·6	0·11717	0·32480	
	21	8 54 3·06	24 54 48·5	0·11548	0·32485	
	22	8 53 20·10	24 43 31·3	0·11384	0·32491	
	23	8 52 36·51	24 31 38·1	0·11225	0·32498	
	24	8 51 52·38	24 19 9·0	0·11072	0·32504	
	25	8 51 7·77	24 6 3·8	0·10925	0·32511	
	26	8 50 22·78	23 52 22·7	0·10783	0·32518	
	27	8 49 37·46	23 38 5·8	0·10648	0·32526	
	28	8 48 51·89	23 23 13·3	0·10519	0·32534	
	29	8 48 6·16	23 7 45·4	0·10396	0·32542	
	30	8 47 20·34	22 51 42·3	0·10280	0·32550	
	31	8 46 34·54	22 35 4·4	0·10171	0·32559	
	February	1	8 45 48·81	22 17 52·2	0·10069	0·32568
		2	8 45 3·25	22 0 6·0	0·09975	0·32578
		3	8 44 17·95	21 41 46·5	0·09887	0·32587
		4	8 43 32·98	21 22 54·1	0·09807	0·32598
		5	8 42 48·45	21 3 29·5	0·09735	0·32608
		6	8 42 4·42	20 43 33·4	0·09671	0·32619
		7	8 41 20·97	20 23 6·7	0·09615	0·32630
8		8 40 38·20	S. 20 2 10·2	0·09567	0·32641	

EPHEMERIS OF PALLAS FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.	Right Ascension.	Declination.	Logarithm of the Distance from the	
			Earth.	Sun.
February	^h ^m ^s 8 40 38.20	[°] ['] ^{''} S. 20 2 10.2	0.09567	0.32641
	8 39 56.19	19 40 44.9	0.09528	0.32653
	8 39 15.02	19 18 51.7	0.09497	0.32665
	11 8 38 34.77	18 56 31.5	0.09474	0.32677
	12 8 37 55.51	18 33 45.6	0.09459	0.32690
	13 8 37 17.31	18 10 35.1	0.09454	0.32703
	14 8 36 40.24	17 47 1.1	0.09457	0.32716
	15 8 36 4.38	17 23 5.0	0.09468	0.32729
	16 8 35 29.77	16 58 47.8	0.09489	0.32743
	17 8 34 56.46	16 34 10.9	0.09518	0.32757
	18 8 34 24.52	16 9 15.6	0.09536	0.32771
	19 8 33 54.00	15 44 3.1	0.09603	0.32786
	20 8 33 24.94	15 18 34.7	0.09658	0.32801
	21 8 32 57.40	14 52 52.0	0.09723	0.32817
	22 8 32 31.41	14 26 56.2	0.09796	0.32832
	23 8 32 7.00	14 0 48.7	0.09877	0.32848
	24 8 31 44.22	13 34 30.7	0.09967	0.32864
	25 8 31 23.11	13 8 3.6	0.10066	0.32881
	26 8 31 3.69	12 41 28.7	0.10173	0.32898
	27 8 30 46.00	12 14 47.3	0.10289	0.32915
	28 8 30 30.06	11 48 0.7	0.10413	0.32932
March	1 8 30 15.90	11 21 10.3	0.10545	0.32950
	2 8 30 3.53	10 54 17.2	0.10685	0.32968
	3 8 29 52.98	10 27 22.8	0.10833	0.32986
	4 8 29 44.27	10 0 28.3	0.10989	0.33004
	5 8 29 37.41	9 33 34.9	0.11153	0.33023
	6 8 29 32.43	9 6 43.9	0.11324	0.33042
	7 8 29 29.34	8 39 56.4	0.11502	0.33062
	8 8 29 28.14	8 13 13.6	0.11688	0.33081
	9 8 29 28.85	7 46 36.6	0.11881	0.33101
	10 8 29 31.47	7 20 6.6	0.12080	0.33121
	11 8 29 36.00	S. 6 53 44.5	0.12287	0.33142

MEAN TIME.

1834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	
Jan. 0	^h 10 ^m 41 ^s 7	N. 21 12	0 2701	^h 16 ^m 0 5	[°] 135 ['] 29	N. 8 42	
4	10 42 4	21 36	0 2604	15 45 4	136 29	8 48	
8	10 42 6	22 2	0 2511	15 29 8	137 30	8 54	
12	10 42 3	22 30	0 2423	15 13 7	138 30	9 0	
16	10 41 6	23 0	0 2341	14 57 2	139 31	9 6	
20	10 40 4	23 32	0 2265	14 40 2	140 32	9 12	
24	10 38 8	24 5	0 2197	14 22 8	141 32	9 17	
28	10 36 8	24 39	0 2138	14 5 0	142 33	9 23	
Feb. 1	10 34 3	25 13	0 2088	13 46 8	143 34	9 28	
5	10 31 5	25 47	0 2049	13 28 2	144 35	9 33	
9	10 28 4	26 19	0 2021	13 9 4	145 36	9 38	
13	10 25 0	26 50	0 2005	12 50 2	146 37	9 42	
17	10 21 5	27 18	0 2001	12 31 0	147 38	9 47	
21	10 17 9	27 43	0 2008	12 11 7	148 39	9 51	
25	10 14 3	28 5	0 2027	11 52 4	149 40	9 55	
March 1	10 10 8	28 23	0 2058	11 33 2	150 41	9 59	
5	10 7 4	28 37	0 2098	11 14 2	151 42	10 3	
9	10 4 3	28 47	0 2149	10 55 4	152 43	10 6	
13	10 1 4	28 52	0 2209	10 36 8	153 44	10 10	
17	9 58 9	28 54	0 2277	10 18 6	154 46	10 13	
21	9 56 8	28 52	0 2352	10 0 9	155 47	10 16	
25	9 55 2	28 47	0 2433	9 43 6	156 48	10 18	
29	9 53 9	28 38	0 2519	9 26 6	157 49	10 21	
April 2	9 53 1	28 25	0 2609	9 10 1	158 50	10 23	
6	9 52 7	28 10	0 2703	8 54 1	159 51	10 26	
10	9 52 9	27 52	0 2799	8 38 6	160 53	10 28	
14	9 53 5	27 31	0 2897	8 23 5	161 54	10 29	
18	9 54 5	27 8	0 2996	8 8 8	162 55	10 30	
22	9 55 8	26 44	0 3095	7 54 4	163 56	10 32	
26	9 57 6	26 17	0 3194	7 40 5	164 57	10 33	
30	9 59 8	25 49	0 3293	7 27 0	165 58	10 35	
May 4	10 2 3	N. 25 19	0 3391	7 13 8	166 59	N. 10 36	

MEAN TIME.

834.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m	[°] [']		^h ^m	[°] [']	[°] [']	
y 4	10 2'3	N.25 19	0'3391	7 13'8	166 59	N.10 36	0'4081
8	10 5'1	24 48	0'3488	7 0'8	168 0	10 36	0'4083
12	10 8'2	24 15	0'3584	6 48'2	169 0	10 36	0'4084
16	10 11'5	23 41	0'3678	6 35'8	170 1	10 37	0'4086
20	10 15'2	23 6	0'3771	6 23'7	171 2	10 37	0'4088
24	10 19'0	22 30	0'3861	6 11'8	172 3	10 37	0'4090
28	10 23'1	21 52	0'3949	6 0'2	173 3	10 36	0'4093
ne 1	10 27'4	21 14	0'4036	5 48'8	174 4	10 36	0'4095
5	10 31'8	20 35	0'4120	5 37'4	175 4	10 35	0'4097
9	10 36'4	19 55	0'4202	5 26'3	176 5	10 34	0'4099
13	10 41'2	19 15	0'4281	5 15'3	177 5	10 33	0'4102
17	10 46'1	18 33	0'4358	5 4'5	178 6	10 32	0'4105
21	10 51'1	17 51	0'4433	4 53'8	179 6	10 30	0'4107
25	10 56'2	17 9	0'4506	4 43'1	180 6	10 28	0'4110
29	11 1'5	16 25	0'4576	4 32'6	181 6	10 27	0'4113
ly 3	11 6'9	15 41	0'4644	4 22'3	182 6	10 25	0'4116
7	11 12'3	14 57	0'4709	4 12'0	183 6	10 22	0'4119
11	11 17'8	14 12	0'4772	4 1'7	184 6	10 20	0'4122
15	11 23'4	13 27	0'4833	3 51'6	185 5	10 17	0'4125
19	11 29'1	12 41	0'4891	3 41'5	186 5	10 15	0'4128
23	11 34'8	11 55	0'4947	3 31'5	187 4	10 12	0'4131
27	11 40'5	11 9	0'5000	3 21'4	188 4	10 9	0'4135
31	11 46'4	10 23	0'5051	3 11'6	189 3	10 5	0'4138
fg. 4	11 52'3	9 36	0'5100	3 1'7	190 2	10 2	0'4141
8	11 58'2	8 49	0'5147	2 51'9	191 1	9 58	0'4145
12	12 4'2	8 2	0'5191	2 42'1	192 0	9 54	0'4149
16	12 10'2	7 15	0'5233	2 32'4	192 58	9 50	0'4152
20	12 16'2	6 27	0'5273	2 22'6	193 57	9 46	0'4156
24	12 22'3	5 40	0'5311	2 13'0	194 56	9 42	0'4160
28	12 28'5	4 53	0'5346	2 3'4	195 54	9 38	0'4164
pt. 1	12 34'7	4 6	0'5379	1 53'8	196 52	9 33	0'4167
5	12 40'9	N. 3 19	0'5409	1 44'3	197 50	N. 9 28	0'4171

MEAN TIME.

1834.	Geocentric.				Heliocentric.	
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.
Sept. 5	^h 12 ^m 40 ^s 9	N. 3 19	0.5409	^h 1 ^m 44 ^s 3	[°] 197 ['] 50	N. 9 28
9	12 47 2	2 33	0.5438	1 34 8	198 48	9 23
13	12 53 5	1 46	0.5464	1 25 2	199 46	9 18
17	12 59 8	1 0	0.5488	1 15 9	200 44	9 13
21	13 6 1	N. 0 14	0.5510	1 6 5	201 41	9 8
25	13 12 5	S. 0 31	0.5529	0 57 1	202 39	9 2
29	13 18 9	1 16	0.5546	0 47 8	203 36	8 57
Oct. 3	13 25 3	2 1	0.5561	0 38 5	204 33	8 51
7	13 31 8	2 45	0.5573	0 29 2	205 30	8 45
11	13 38 3	3 28	0.5583	0 19 9	206 27	8 39
15	13 44 8	4 11	0.5591	0 10 6	207 24	8 33
19	13 51 3	4 54	0.5597	{ ⁰ 0 ^m 1 ^s 4}	208 21	8 27
23	13 57 8	5 35	0.5600	23 49 8	209 17	8 20
27	14 4 4	6 16	0.5601	23 40 6	210 13	8 14
31	14 11 0	6 56	0.5599	23 31 5	211 9	8 7
Nov. 4	14 17 6	7 35	0.5595	23 22 3	212 5	8 0
8	14 24 2	8 13	0.5589	23 13 2	213 1	7 54
12	14 30 8	8 51	0.5580	23 4 0	213 56	7 47
16	14 37 4	9 27	0.5569	22 54 9	214 52	7 40
20	14 44 1	10 3	0.5555	22 45 8	215 47	7 32
24	14 50 7	10 37	0.5539	22 36 7	216 42	7 25
28	14 57 3	11 10	0.5520	22 27 5	217 37	7 18
Dec. 2	15 3 9	11 43	0.5499	22 18 3	218 32	7 10
6	15 10 5	12 14	0.5475	22 9 2	219 27	7 3
10	15 17 1	12 44	0.5449	22 0 0	220 22	6 55
14	15 23 7	13 13	0.5420	21 50 8	221 16	6 48
18	15 30 2	13 41	0.5388	21 41 6	222 10	6 40
22	15 36 7	14 8	0.5354	21 32 3	223 4	6 32
26	15 43 2	14 33	0.5317	21 23 1	223 58	6 24
30	15 49 6	14 57	0.5277	21 13 7	224 52	6 16
31	15 51 2	S. 15 3	0.5267	21 11 4	225 6	N. 6 14

EPHEMERIS OF CERES FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.		Right Ascension.	Declination.	Logarithm of the Distance from the	
				Earth.	Sun.
		^h ^m ^s	[°] ['] ["]		
January	16	10 41 30.45	N. 23 4 18.1	0.23307	0.40703
	17	10 41 14.51	23 12 12.1	0.23113	0.40701
	18	10 40 56.87	23 20 11.8	0.22924	0.40699
	19	10 40 37.55	23 28 16.6	0.22739	0.40697
	20	10 40 16.54	23 36 26.1	0.22560	0.40695
	21	10 39 53.83	23 44 39.7	0.22385	0.40693
	22	10 39 29.45	23 52 56.9	0.22215	0.40691
	23	10 39 3.44	24 1 17.4	0.22050	0.40689
	24	10 38 35.82	24 9 40.9	0.21891	0.40687
	25	10 38 6.60	24 18 6.9	0.21738	0.40686
	26	10 37 35.81	24 26 34.9	0.21590	0.40684
	27	10 37 3.48	24 35 4.0	0.21448	0.40682
	28	10 36 29.63	24 43 33.8	0.21311	0.40681
	29	10 35 54.29	24 52 3.6	0.21181	0.40679
	30	10 35 17.50	25 0 33.0	0.21058	0.40678
	31	10 34 29.30	25 9 1.5	0.20940	0.40677
February	1	10 33 59.74	25 17 28.4	0.20829	0.40675
	2	10 33 18.84	25 25 53.5	0.20725	0.40674
	3	10 32 36.67	25 34 15.8	0.20628	0.40673
	4	10 31 53.27	25 42 34.8	0.20536	0.40672
	5	10 31 8.69	25 50 49.8	0.20452	0.40671
	6	10 30 22.99	25 59 0.1	0.20375	0.40670
	7	10 29 36.24	26 7 5.3	0.20306	0.40669
	8	10 28 48.49	26 15 4.6	0.20244	0.40668
	9	10 27 59.81	26 22 57.2	0.20188	0.40667
	10	10 27 10.26	26 30 42.6	0.20140	0.40666
	11	10 26 19.92	26 38 20.3	0.20100	0.40666
	12	10 25 28.86	26 45 49.7	0.20067	0.40665
	13	10 24 37.15	26 53 10.4	0.20041	0.40664
	14	10 23 44.86	27 0 21.6	0.20023	0.40664
8	15	10 22 52.07	27 7 22.9	0.20012	0.40663
	16	10 21 58.86	N. 27 14 14.0	0.20008	0.40663

EPHEMERIS OF CERES FOR THE OPPOSITION.

At Greenwich Mean Midnight.

1834.	Right Ascension.	Declination.	Logarithm of the Distance from the	
			Earth.	Sun.
February	16	^h 10 ^m 21 ^s 58·86 N. [°] 27 ['] 14 ["] 14·0	0·20008	0·40668
	17	10 21 5·30 27 20 54·2	0·20012	0·40662
	18	10 20 11·47 27 27 22·8	0·20024	0·40662
	19	10 19 17·43 27 33 39·7	0·20042	0·40662
	20	10 18 23·28 27 39 44·6	0·20068	0·40662
	21	10 17 29·07 27 45 36·9	0·20101	0·40662
	22	10 16 34·89 27 51 16·2	0·20142	0·40662
	23	10 15 40·81 27 56 42·4	0·20190	0·40662
	24	10 14 46·90 28 1 55·1	0·20244	0·40662
	25	10 13 53·24 28 6 54·0	0·20307	0·40662
	26	10 12 59·91 28 11 38·8	0·20376	0·40662
	27	10 12 6·96 28 16 9·3	0·20451	0·40663
	28	10 11 14·48 28 20 25·4	0·20533	0·40663
	1	10 10 22·54 28 24 26·8	0·20622	0·40663
March	2	10 9 31·21 28 28 13·1	0·20719	0·40664
	3	10 8 40·56 28 31 44·4	0·20821	0·40664
	4	10 7 50·66 28 35 0·7	0·20929	0·40665
	5	10 7 1·58 28 38 1·7	0·21044	0·40665
	6	10 6 13·39 28 40 47·1	0·21166	0·40666
	7	10 5 26·15 28 43 17·2	0·21293	0·40667
	8	10 4 39·93 28 45 32·0	0·21426	0·40667
	9	10 3 54·78 28 47 31·3	0·21564	0·40668
	10	10 3 10·78 28 49 15·1	0·21709	0·40669
	11	10 2 27·96 28 50 43·5	0·21859	0·40670
	12	10 1 46·39 28 51 56·8	0·22014	0·40671
	13	10 1 6·12 28 52 54·9	0·22174	0·40672
	14	10 0 27·19 28 53 37·6	0·22339	0·40673
	15	9 59 49·65 28 54 5·5	0·22509	0·40675
	16	9 59 13·54 28 54 18·5	0·22684	0·40676
	17	9 58 38·89 N. 28 54 16·9	0·22863	0·40677

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JANUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	1 37 43.31	N. 8 50 23.9	0.6648540	6 54.0	36 52 5.6	S. 1 9 27.5	0.6964509
2	1 37 52.15	8 51 35.0	.6663137	6 50.2	36 57 33.1	1 9 23.9	.6964651
3	1 38 1.76	8 52 50.4	.6677746	6 46.4	37 3 0.6	1 9 20.3	.6964792
4	1 38 12.12	8 54 10.0	.6692365	6 42.7	37 8 28.0	1 9 16.8	.6964934
5	1 38 23.24	8 55 33.9	.6706990	6 39.0	37 13 55.4	1 9 13.2	.6965076
6	1 38 35.10	8 57 2.0	.6721615	6 35.2	37 19 22.8	1 9 9.6	.6965219
7	1 38 47.71	8 58 34.2	.6736235	6 31.5	37 24 50.2	1 9 6.0	.6965361
8	1 39 1.06	9 0 10.6	.6750847	6 27.8	37 30 17.6	1 9 2.4	.6965504
9	1 39 15.15	9 1 51.1	.6765446	6 24.1	37 35 45.0	1 8 58.8	.6965647
10	1 39 29.96	9 3 35.6	.6780027	6 20.4	37 41 12.3	1 8 55.2	.6965791
11	1 39 45.50	9 5 24.1	.6794586	6 16.7	37 46 39.6	1 8 51.5	.6965934
12	1 40 1.76	9 7 16.6	.6809119	6 13.1	37 52 6.8	1 8 47.9	.6966078
13	1 40 18.74	9 9 13.1	.6823622	6 9.4	37 57 34.1	1 8 44.2	.6966222
14	1 40 36.42	9 11 13.5	.6838091	6 5.8	38 3 1.3	1 8 40.6	.6966367
15	1 40 54.80	9 13 17.7	.6852522	6 2.1	38 8 28.5	1 8 36.9	.6966511
16	1 41 13.88	9 15 25.6	.6866911	5 58.5	38 13 55.7	1 8 33.2	.6966656
17	1 41 33.64	9 17 37.2	.6881255	5 54.9	38 19 22.8	1 8 29.5	.6966801
18	1 41 54.09	9 19 52.4	.6895551	5 51.4	38 24 49.9	1 8 25.8	.6966946
19	1 42 15.21	9 22 11.2	.6909795	5 47.8	38 30 17.0	1 8 22.1	.6967092
20	1 42 36.99	9 24 33.6	.6923983	5 44.2	38 35 44.1	1 8 18.4	.6967238
21	1 42 59.43	9 26 59.6	.6938113	5 40.7	38 41 11.2	1 8 14.7	.6967384
22	1 43 22.53	9 29 29.0	.6952183	5 37.1	38 46 38.2	1 8 10.9	.6967531
23	1 43 46.27	9 32 1.8	.6966189	5 33.6	38 52 5.2	1 8 7.1	.6967678
24	1 44 10.64	9 34 38.0	.6980130	5 30.1	38 57 32.2	1 8 3.4	.6967826
25	1 44 35.65	9 37 17.5	.6994002	5 26.6	39 2 59.2	1 7 59.6	.6967975
26	1 45 1.28	9 40 0.2	.7007803	5 23.0	39 8 26.1	1 7 55.8	.6968124
27	1 45 27.53	9 42 46.1	.7021531	5 19.6	39 13 53.0	1 7 52.0	.6968274
28	1 45 54.38	9 45 35.1	.7035183	5 16.1	39 19 19.9	1 7 48.2	.6968424
29	1 46 21.84	9 48 27.1	.7048757	5 12.6	39 24 46.8	1 7 44.4	.6968575
30	1 46 49.90	9 51 22.2	.7062251	5 9.1	39 30 13.6	1 7 40.6	.6968727
31	1 47 18.55	9 54 20.2	.7075662	5 5.7	39 35 40.5	1 7 36.7	.6968879
32	1 47 47.79	N. 9 57 21.1	0.7088988	5 2.2	39 41 7.3	S. 1 7 32.9	0.6969031

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Lo Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	N
1	^h 1 47 ^m 47 ^s 79	[°] N. 9 57 ['] 21 ["] 1	0.7088988	^h 5 2 2	[°] 39 41 7 3	[°] S. 1 7 32 9	0.69
2	1 48 17 61	10 0 25 0	.7102226	4 58 8	39 46 34 1	1 7 29 0	.69
3	1 48 48 01	10 3 31 7	.7115374	4 55 4	39 52 0 8	1 7 25 2	.69
4	1 49 18 97	10 6 41 1	.7128430	4 52 0	39 57 27 5	1 7 21 3	.69
5	1 49 50 49	10 9 53 3	.7141391	4 48 5	40 2 54 2	1 7 17 4	.69
6	1 50 22 57	10 13 8 1	.7154255	4 45 1	40 8 20 9	1 7 13 5	.69
7	1 50 55 19	10 16 25 6	.7167021	4 41 7	40 13 47 6	1 7 9 6	.69
8	1 51 28 35	10 19 45 6	.7179686	4 38 4	40 19 14 2	1 7 5 7	.69
9	1 52 2 05	10 23 8 1	.7192248	4 35 0	40 24 40 8	1 7 1 8	.69
10	1 52 36 28	10 26 33 1	.7204705	4 31 7	40 30 7 4	1 6 57 9	.69
11	1 53 11 02	10 30 0 5	.7217056	4 28 3	40 35 33 9	1 6 53 9	.69
12	1 53 46 27	10 33 30 2	.7229299	4 24 9	40 41 0 4	1 6 49 9	.69
13	1 54 22 03	10 37 2 2	.7241431	4 21 6	40 46 26 9	1 6 46 0	.69
14	1 54 58 29	10 40 36 4	.7253451	4 18 3	40 51 53 4	1 6 42 0	.69
15	1 55 35 03	10 44 12 8	.7265357	4 15 0	40 57 19 8	1 6 38 0	.69
16	1 56 12 26	10 47 51 3	.7277148	4 11 6	41 2 46 2	1 6 34 0	.69
17	1 56 49 95	10 51 31 8	.7288822	4 8 3	41 8 12 6	1 6 30 0	.69
18	1 57 28 11	10 55 14 3	.7300378	4 5 0	41 13 39 0	1 6 26 0	.69
19	1 58 6 73	10 58 58 8	.7311814	4 1 8	41 19 5 4	1 6 22 0	.69
20	1 58 45 80	11 2 45 2	.7323130	3 58 5	41 24 31 7	1 6 17 9	.69
21	1 59 25 32	11 6 33 4	.7334325	3 55 2	41 29 58 0	1 6 13 9	.69
22	2 0 5 27	11 10 23 3	.7345398	3 51 9	41 35 24 3	1 6 9 8	.69
23	2 0 45 66	11 14 15 0	.7356349	3 48 7	41 40 50 5	1 6 5 8	.69
24	2 1 26 47	11 18 8 3	.7367177	3 45 4	41 46 16 7	1 6 1 7	.69
25	2 2 7 71	11 22 3 3	.7377881	3 42 2	41 51 42 9	1 5 57 6	.69
26	2 2 49 36	11 25 59 8	.7388461	3 38 9	41 57 9 1	1 5 53 5	.69
27	2 3 31 41	11 29 57 9	.7398915	3 35 7	42 2 35 2	1 5 49 4	.69
28	2 4 13 87	11 33 57 4	.7409242	3 32 4	42 8 1 3	1 5 45 3	.69
29	2 4 56 73	N. 11 37 58 4	0.7419441	3 29 2	42 13 27 4	S. 1 5 41 2	0.69

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MARCH, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	2 4 56 ^{h m s} .73	N. 11 37 58 ^{o ' "} .4	0.7419441	3 29 ^{h m} .2	42 13 27 ^{o ' "} .4	S. 1 5 41 ^{o ' "} .2	0.6973471
2	2 5 39 ^{h m s} .98	11 42 0 ^{o ' "} .8	.7429511	3 26 ^{h m} .0	42 18 53 ^{o ' "} .4	1 5 37 ^{o ' "} .1	.6973636
3	2 6 23 ^{h m s} .61	11 46 4 ^{o ' "} .5	.7439451	3 22 ^{h m} .8	42 24 19 ^{o ' "} .4	1 5 33 ^{o ' "} .0	.6973801
4	2 7 7 ^{h m s} .62	11 50 9 ^{o ' "} .5	.7449261	3 19 ^{h m} .6	42 29 45 ^{o ' "} .4	1 5 28 ^{o ' "} .8	.6973967
5	2 7 52 ^{h m s} .01	11 54 15 ^{o ' "} .7	.7458940	3 16 ^{h m} .4	42 35 11 ^{o ' "} .4	1 5 24 ^{o ' "} .7	.6974133
6	2 8 36 ^{h m s} .76	11 58 23 ^{o ' "} .1	.7468487	3 13 ^{h m} .2	42 40 37 ^{o ' "} .4	1 5 20 ^{o ' "} .5	.6974300
7	2 9 21 ^{h m s} .88	12 2 31 ^{o ' "} .7	.7477901	3 10 ^{h m} .0	42 46 3 ^{o ' "} .3	1 5 16 ^{o ' "} .4	.6974468
8	2 10 7 ^{h m s} .35	12 6 41 ^{o ' "} .4	.7487181	3 6 ^{h m} .9	42 51 29 ^{o ' "} .2	1 5 12 ^{o ' "} .2	.6974636
9	2 10 53 ^{h m s} .18	12 10 52 ^{o ' "} .2	.7496326	3 3 ^{h m} .7	42 56 55 ^{o ' "} .1	1 5 8 ^{o ' "} .0	.6974805
10	2 11 39 ^{h m s} .35	12 15 4 ^{o ' "} .0	.7505335	3 0 ^{h m} .5	43 2 21 ^{o ' "} .0	1 5 3 ^{o ' "} .8	.6974974
11	2 12 25 ^{h m s} .86	12 19 16 ^{o ' "} .8	.7514206	2 57 ^{h m} .4	43 7 46 ^{o ' "} .8	1 4 59 ^{o ' "} .6	.6975144
12	2 13 12 ^{h m s} .69	12 23 30 ^{o ' "} .5	.7522939	2 54 ^{h m} .2	43 13 12 ^{o ' "} .6	1 4 55 ^{o ' "} .3	.6975314
13	2 13 59 ^{h m s} .86	12 27 45 ^{o ' "} .0	.7531533	2 51 ^{h m} .1	43 18 38 ^{o ' "} .4	1 4 51 ^{o ' "} .1	.6975484
14	2 14 47 ^{h m s} .34	12 32 0 ^{o ' "} .3	.7539987	2 47 ^{h m} .9	43 24 4 ^{o ' "} .1	1 4 46 ^{o ' "} .9	.6975654
15	2 15 35 ^{h m s} .14	12 36 16 ^{o ' "} .4	.7548301	2 44 ^{h m} .8	43 29 29 ^{o ' "} .8	1 4 42 ^{o ' "} .6	.6975824
16	2 16 23 ^{h m s} .25	12 40 33 ^{o ' "} .2	.7556475	2 41 ^{h m} .7	43 34 55 ^{o ' "} .5	1 4 38 ^{o ' "} .3	.6975994
17	2 17 11 ^{h m s} .65	12 44 50 ^{o ' "} .7	.7564510	2 38 ^{h m} .5	43 40 21 ^{o ' "} .2	1 4 34 ^{o ' "} .1	.6976165
18	2 18 0 ^{h m s} .34	12 49 8 ^{o ' "} .8	.7572405	2 35 ^{h m} .4	43 45 46 ^{o ' "} .8	1 4 29 ^{o ' "} .8	.6976336
19	2 18 49 ^{h m s} .31	12 53 27 ^{o ' "} .5	.7580159	2 32 ^{h m} .3	43 51 12 ^{o ' "} .4	1 4 25 ^{o ' "} .5	.6976508
20	2 19 38 ^{h m s} .56	12 57 46 ^{o ' "} .7	.7587774	2 29 ^{h m} .2	43 56 38 ^{o ' "} .0	1 4 21 ^{o ' "} .2	.6976680
21	2 20 28 ^{h m s} .09	13 2 6 ^{o ' "} .4	.7595248	2 26 ^{h m} .1	44 2 3 ^{o ' "} .6	1 4 16 ^{o ' "} .9	.6976852
22	2 21 17 ^{h m s} .89	13 6 26 ^{o ' "} .5	.7602582	2 22 ^{h m} .9	44 7 29 ^{o ' "} .1	1 4 12 ^{o ' "} .6	.6977026
23	2 22 7 ^{h m s} .95	13 10 47 ^{o ' "} .0	.7609775	2 19 ^{h m} .8	44 12 54 ^{o ' "} .6	1 4 8 ^{o ' "} .3	.6977200
24	2 22 58 ^{h m s} .28	13 15 7 ^{o ' "} .9	.7616827	2 16 ^{h m} .7	44 18 20 ^{o ' "} .1	1 4 3 ^{o ' "} .9	.6977375
25	2 23 48 ^{h m s} .86	13 19 29 ^{o ' "} .1	.7623737	2 13 ^{h m} .6	44 23 45 ^{o ' "} .5	1 3 59 ^{o ' "} .6	.6977550
26	2 24 39 ^{h m s} .69	13 23 50 ^{o ' "} .5	.7630505	2 10 ^{h m} .6	44 29 10 ^{o ' "} .9	1 3 55 ^{o ' "} .3	.6977726
27	2 25 30 ^{h m s} .77	13 28 12 ^{o ' "} .2	.7637130	2 7 ^{h m} .5	44 34 36 ^{o ' "} .3	1 3 50 ^{o ' "} .9	.6977902
28	2 26 22 ^{h m s} .09	13 32 34 ^{o ' "} .1	.7643613	2 4 ^{h m} .4	44 40 1 ^{o ' "} .7	1 3 46 ^{o ' "} .5	.6978078
29	2 27 13 ^{h m s} .65	13 36 56 ^{o ' "} .2	.7649955	2 1 ^{h m} .3	44 45 27 ^{o ' "} .0	1 3 42 ^{o ' "} .2	.6978255
30	2 28 5 ^{h m s} .44	13 41 18 ^{o ' "} .4	.7656155	1 58 ^{h m} .3	44 50 52 ^{o ' "} .3	1 3 37 ^{o ' "} .8	.6978431
31	2 28 57 ^{h m s} .45	13 45 40 ^{o ' "} .7	.7662213	1 55 ^{h m} .2	44 56 17 ^{o ' "} .6	1 3 33 ^{o ' "} .4	.6978607
32	2 29 49 ^{h m s} .69	N. 13 50 3 ^{o ' "} .1	0.7668128	1 52 ^{h m} .1	45 1 42 ^{o ' "} .9	S. 1 3 29 ^{o ' "} .0	0.6978784

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	h m s 2 29 49.69	N. 13 50 3.1	0.7668128	h m 1 52.1	o ' " # 45 1 42.9	S. 1 3 29.0	0.697
2	2 30 42.14	13 54 25.5	.7673900	1 49.1	45 7 8.2	1 3 24.6	.697
3	2 31 34.81	13 58 48.0	.7679528	1 46.0	45 12 33.5	1 3 20.2	.697
4	2 32 27.68	14 3 10.4	.7685012	1 42.9	45 17 58.7	1 3 15.7	.697
5	2 33 20.76	14 7 32.8	.7690351	1 39.9	45 23 23.9	1 3 11.2	.697
6	2 34 14.04	14 11 55.0	.7695546	1 36.8	45 28 49.1	1 3 6.8	.697
7	2 35 7.51	14 16 17.0	.7700595	1 33.8	45 34 14.2	1 3 2.3	.697
8	2 36 1.17	14 20 38.9	.7705499	1 30.8	45 39 39.3	1 2 57.9	.698
9	2 36 55.01	14 25 0.5	.7710258	1 27.7	45 45 4.4	1 2 53.4	.698
10	2 37 49.03	14 29 21.9	.7714871	1 24.7	45 50 29.5	1 2 48.9	.698
11	2 38 43.22	14 33 42.9	.7719338	1 21.6	45 55 54.6	1 2 44.4	.698
12	2 39 37.57	14 38 3.6	.7723660	1 18.6	46 1 19.6	1 2 39.9	.698
13	2 40 32.08	14 42 23.9	.7727836	1 15.6	46 6 44.6	1 2 35.4	.698
14	2 41 26.75	14 46 43.7	.7731866	1 12.6	46 12 9.5	1 2 30.9	.698
15	2 42 21.56	14 51 3.1	.7735750	1 9.5	46 17 34.4	1 2 26.4	.698
16	2 43 16.51	14 55 22.1	.7739489	1 6.5	46 22 59.3	1 2 21.8	.698
17	2 44 11.60	14 59 40.5	.7743083	1 3.5	46 28 24.2	1 2 17.2	.698
18	2 45 6.83	15 3 58.4	.7746531	1 0.5	46 33 49.0	1 2 12.7	.698
19	2 46 2.18	15 8 15.7	.7749834	0 57.5	46 39 13.8	1 2 8.1	.698
20	2 46 57.66	15 12 32.3	.7752993	0 54.5	46 44 38.5	1 2 3.6	.698
21	2 47 53.26	15 16 48.3	.7756007	0 51.5	46 50 3.3	1 1 59.0	.698
22	2 48 48.97	15 21 3.7	.7758877	0 48.5	46 55 28.0	1 1 54.4	.698
23	2 49 44.80	15 25 18.4	.7761603	0 45.4	47 0 52.7	1 1 49.8	.698
24	2 50 40.73	15 29 32.3	.7764184	0 42.4	47 6 17.3	1 1 45.2	.698
25	2 51 36.77	15 33 45.5	.7766621	0 39.4	47 11 42.0	1 1 40.5	.698
26	2 52 32.91	15 37 57.9	.7768915	0 36.4	47 17 6.6	1 1 35.9	.698
27	2 53 29.15	15 42 9.5	.7771064	0 33.4	47 22 31.2	1 1 31.3	.698
28	2 54 25.48	15 46 20.2	.7773070	0 30.4	47 27 55.7	1 1 26.6	.698
29	2 55 21.89	15 50 30.1	.7774931	0 27.4	47 33 20.3	1 1 22.0	.698
30	2 56 18.39	15 54 39.1	.7776648	0 24.5	47 38 44.8	1 1 17.3	.698
1	2 57 14.97	N. 15 58 47.2	0.7778219	0 21.5	47 44 9.3	S. 1 1 12.6	0.698

MAY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
57 14'97	N. 15 58 47'2	0.7778219	0 21'5	47 44 9'3	S. 1 1 12'6	0.6984301
58 11'62	16 2 54'3	.7779645	0 18'5	47 49 33'7	1 1 8'0	.6984490
59 8'34	16 7 0'5	.7780927	0 15'5	47 54 58'1	1 1 3'3	.6984679
0 5'13	16 11 5'8	.7782064	0 12'5	48 0 22'5	1 0 58'6	.6984869
1 1'98	16 15 10'1	.7783057	0 9'5	48 5 46'9	1 0 53'9	.6985059
1 58'88	16 19 13'3	.7783906	0 6'5	48 11 11'2	1 0 49'2	.6985250
2 55'83	16 23 15'5	.7784611	0 3'5	48 16 35'5	1 0 44'4	.6985441
3 52'83	16 27 16'6	.7785172	{ 0 2'3 }	48 21 59'8	1 0 39'7	.6985633
4 49'86	16 31 16'6	.7785588	23 54'6	48 27 24'0	1 0 35'0	.6985826
5 46'92	16 35 15'4	.7785859	23 51'6	48 32 48'2	1 0 30'2	.6986020
6 44'01	16 39 13'0	.7785986	23 48'6	48 38 12'4	1 0 25'4	.6986214
7 41'13	16 43 9'5	.7785968	23 45'6	48 43 36'6	1 0 20'7	.6986408
8 38'27	16 47 4'8	.7785805	23 42'6	48 49 0'7	1 0 15'9	.6986603
9 35'42	16 50 58'8	.7785498	23 39'6	48 54 24'8	1 0 11'1	.6986798
10 32'58	16 54 51'6	.7785046	23 36'7	48 59 48'9	1 0 6'3	.6986993
11 29'75	16 58 43'1	.7784454	23 33'7	49 5 13'0	1 0 1'5	.6987189
12 26'91	17 2 33'3	.7783721	23 30'7	49 10 37'0	0 59 56'7	.6987385
13 24'07	17 6 22'1	.7782843	23 27'7	49 16 1'0	0 59 51'9	.6987581
14 21'22	17 10 9'6	.7781823	23 24'7	49 21 25'0	0 59 47'0	.6987777
15 18'35	17 13 55'7	.7780663	23 21'7	49 26 49'0	0 59 42'2	.6987973
16 15'46	17 17 40'4	.7779362	23 18'8	49 32 13'0	0 59 37'4	.6988170
17 12'55	17 21 23'8	.7777920	23 15'8	49 37 36'9	0 59 32'5	.6988367
18 9'62	17 25 5'7	.7776336	23 12'8	49 43 0'8	0 59 27'7	.6988564
19 6'65	17 28 46'2	.7774609	23 9'8	49 48 24'6	0 59 22'8	.6988762
20 3'65	17 32 25'3	.7772737	23 6'8	49 53 48'4	0 59 17'9	.6988960
21 0'60	17 36 3'0	.7770723	23 3'8	49 59 12'1	0 59 13'0	.6989158
21 57'51	17 39 39'2	.7768568	23 0'8	50 4 35'9	0 59 8'1	.6989357
22 54'37	17 43 13'9	.7766273	22 57'8	50 9 59'6	0 59 3'2	.6989556
23 51'19	17 46 47'1	.7763840	22 54'9	50 15 23'3	0 58 58'3	.6989756
24 47'95	17 50 18'8	.7761268	22 51'9	50 20 46'9	0 58 53'4	.6989956
25 44'65	17 53 49'0	.7758556	22 48'9	50 26 10'6	0 58 48'4	.6990158
26 41'29	N. 17 57 17'6	0.7755704	22 45'9	50 31 34'2	S. 0 58 43'5	0.6990360

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No	
	^{h m s}	^{° ' "}		^{h m}	^{° ' "}	^{° ' "}		
1	3 26 41.29	N. 17 57 17.6	0.7755704	22 45.9	50 31 34.2	S. 0 58 43.5	0.699	
2	3 27 37.85	18 0 44.7	.7752712	22 42.9	50 36 57.8	0 58 38.6	.699	
3	3 28 34.33	18 4 10.2	.7749579	22 39.9	50 42 21.3	0 58 33.6	.699	
4	3 29 30.72	18 7 34.1	.7746306	22 36.9	50 47 44.8	0 58 28.7	.699	
5	3 30 27.02	18 10 56.4	.7742892	22 33.9	50 53 8.3	0 58 23.7	.699	
6	3 31 23.23	18 14 17.0	.7739337	22 30.9	50 58 31.8	0 58 18.7	.699	
7	3 32 19.33	18 17 36.0	.7735641	22 27.9	51 3 55.2	0 58 13.7	.699	
8	3 33 15.33	18 20 53.4	.7731805	22 24.9	51 9 18.6	0 58 8.7	.699	
9	3 34 11.21	18 24 9.1	.7727830	22 21.9	51 14 41.9	0 58 3.7	.699	
10	3 35 6.97	18 27 23.1	.7723716	22 18.9	51 20 5.2	0 57 58.7	.699	
11	3 36 2.61	18 30 35.5	.7719464	22 15.9	51 25 28.5	0 57 53.7	.699	
12	3 36 58.12	18 33 46.2	.7715072	22 12.9	51 30 51.8	0 57 48.6	.699	
13	3 37 53.49	18 36 55.1	.7710542	22 9.9	51 36 15.0	0 57 43.6	.699	
14	3 38 48.72	18 40 2.2	.7705873	22 6.8	51 41 38.2	0 57 38.5	.699	
15	3 39 43.80	18 43 7.6	.7701067	22 3.8	51 47 1.4	0 57 33.5	.699	
16	3 40 38.73	18 46 11.3	.7696124	22 0.8	51 52 24.5	0 57 28.5	.699	
17	3 41 33.51	18 49 13.2	.7691046	21 57.8	51 57 47.6	0 57 23.4	.699	
18	3 42 28.13	18 52 13.3	.7685833	21 54.7	52 3 10.7	0 57 18.3	.699	
19	3 43 22.59	18 55 11.7	.7680486	21 51.7	52 8 33.7	0 57 13.2	.699	
20	3 44 16.88	18 58 8.3	.7675004	21 48.7	52 13 56.8	0 57 8.1	.699	
21	3 45 10.99	19 1 3.2	.7669388	21 45.6	52 19 19.8	0 57 3.0	.699	
22	3 46 4.92	19 3 56.2	.7663637	21 42.6	52 24 42.8	0 56 57.9	.699	
23	3 46 58.66	19 6 47.5	.7657751	21 39.5	52 30 5.8	0 56 52.8	.699	
24	3 47 52.21	19 9 36.9	.7651732	21 36.5	52 35 28.7	0 56 47.6	.699	
25	3 48 45.57	19 12 24.6	.7645578	21 33.4	52 40 51.6	0 56 42.5	.699	
26	3 49 38.72	19 15 10.5	.7639290	21 30.4	52 46 14.5	0 56 37.4	.699	
27	3 50 31.67	19 17 54.5	.7632869	21 27.3	52 51 37.3	0 56 32.3	.699	
28	3 51 24.40	19 20 36.7	.7626315	21 24.3	52 57 0.1	0 56 27.1	.699	
29	3 52 16.91	19 23 17.1	.7619628	21 21.2	53 2 22.8	0 56 22.0	.699	
30	3 53 9.20	19 25 55.6	.7612809	21 18.1	53 7 45.5	0 56 16.9	.699	
31	3 54 1.25	N. 19 28 32.3	0.7605858	21 15.0	53 13 8.1	S. 0 56 11.7	0.699	

JUPITER.

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JULY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ^{''}		^h ^m	[°] ['] ^{''}	[°] ['] ^{''}		
1	3 54 1'25	N.19 28 32'3	0.7605858	21 15'0	53 13 8'1	S. 0 56 11'7	0.6996599	
2	3 54 53'06	19 31 7'2	.7598775	21 12'0	53 18 30'8	0 56 6'6	.6996812	
3	3 55 44'63	19 33 40'2	.7591560	21 8'9	53 23 53'4	0 56 1'4	.6997025	
4	3 56 35'94	19 36 11'4	.7584214	21 5'8	53 29 16'0	0 55 56'2	.6997240	
5	3 57 27'00	19 38 40'8	.7576737	21 2'7	53 34 38'6	0 55 51'0	.6997455	
6	3 58 17'79	19 41 8'3	.7569130	20 59'6	53 40 1'2	0 55 45'7	.6997671	
7	3 59 8'30	19 43 34'0	.7561394	20 56'5	53 45 23'7	0 55 40'5	.6997888	
8	3 59 58'53	19 45 57'7	.7553530	20 53'4	53 50 46'2	0 55 35'3	.6998105	
9	4 0 48'47	19 48 19'6	.7545538	20 50'3	53 56 8'6	0 55 30'0	.6998323	
10	4 1 38'11	19 50 39'5	.7537417	20 47'2	54 1 31'0	0 55 24'8	.6998541	
11	4 2 27'45	19 52 57'6	.7529169	20 44'1	54 6 53'3	0 55 19'5	.6998759	
12	4 3 16'47	19 55 13'7	.7520793	20 41'0	54 12 15'6	0 55 14'2	.6998978	
13	4 4 5'18	19 57 28'0	.7512292	20 37'8	54 17 37'8	0 55 9'0	.6999197	
14	4 4 53'57	19 59 40'3	.7503668	20 34'7	54 23 0'0	0 55 3'7	.6999417	
15	4 5 41'63	20 1 50'8	.7494921	20 31'6	54 28 22'2	0 54 58'4	.6999637	
16	4 6 29'36	20 3 59'3	.7486053	20 28'4	54 33 44'3	0 54 53'1	.6999857	
17	4 7 16'75	20 6 6'0	.7477063	20 25'2	54 39 6'4	0 54 47'8	.7000078	
18	4 8 3'80	20 8 10'8	.7467952	20 22'1	54 44 28'5	0 54 42'5	.7000298	
19	4 8 50'50	20 10 13'8	.7458721	20 18'9	54 49 50'5	0 54 37'2	.7000518	
20	4 9 36'85	20 12 14'9	.7449369	20 15'7	54 55 12'6	0 54 31'9	.7000736	
21	4 10 22'83	20 14 14'2	.7439896	20 12'6	55 0 34'6	0 54 26'6	.7000955	
22	4 11 8'44	20 16 11'6	.7430304	20 9'4	55 5 56'6	0 54 21'2	.7001173	
23	4 11 53'67	20 18 7'1	.7420594	20 6'2	55 11 18'6	0 54 15'9	.7001391	
24	4 12 38'51	20 20 0'8	.7410767	20 3'0	55 16 40'5	0 54 10'6	.7001609	
25	4 13 22'96	20 21 52'6	.7400824	19 59'8	55 22 2'4	0 54 5'2	.7001828	
26	4 14 7'01	20 23 42'6	.7390765	19 56'6	55 27 24'3	0 53 59'9	.7002047	
27	4 14 50'66	20 25 30'7	.7380591	19 53'4	55 32 46'1	0 53 54'5	.7002267	
28	4 15 33'89	20 27 16'9	.7370303	19 50'2	55 38 7'9	0 53 49'1	.7002488	
29	4 16 16'70	20 29 1'3	.7359903	19 46'9	55 43 29'6	0 53 43'8	.7002710	
30	4 16 59'08	20 30 43'8	.7349390	19 43'7	55 48 51'3	0 53 38'4	.7002932	
31	4 17 41'01	20 32 24'5	.7338766	19 40'5	55 54 12'9	0 53 33'0	.7003155	
32	4 18 22'49	N.20 34 3'3	0.7328031	19 37'2	55 59 34'5	S. 0 53 27'6	0.7003378	

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	4 18 22.49	N. 20 34 3.3	0.7328031	19 37.2	55 59 34.5	S. 0 53 27.6	0.700	
2	4 19 3.52	20 35 40.3	.7317188	19 33.9	56 4 56.1	0 53 22.2	.700	
3	4 19 44.08	20 37 15.5	.7306237	19 30.7	56 10 17.6	0 53 16.8	.700	
4	4 20 24.16	20 38 48.8	.7295180	19 27.4	56 15 39.1	0 53 11.4	.700	
5	4 21 3.76	20 40 20.3	.7284018	19 24.1	56 21 0.6	0 53 6.0	.700	
6	4 21 42.88	20 41 49.9	.7272753	19 20.9	56 26 22.0	0 53 0.5	.700	
7	4 22 21.50	20 43 17.7	.7261386	19 17.6	56 31 43.4	0 52 55.0	.700	
8	4 22 59.61	20 44 43.7	.7249919	19 14.3	56 37 4.8	0 52 49.6	.700	
9	4 23 37.21	20 46 7.9	.7238354	19 11.0	56 42 26.2	0 52 44.1	.700	
10	4 24 14.28	20 47 30.2	.7226693	19 7.6	56 47 47.5	0 52 38.6	.700	
11	4 24 50.82	20 48 50.7	.7214937	19 4.3	56 53 8.8	0 52 33.1	.700	
12	4 25 26.83	20 50 9.5	.7203087	19 0.9	56 58 30.0	0 52 27.6	.700	
13	4 26 2.30	20 51 26.4	.7191146	18 57.6	57 3 51.2	0 52 22.1	.700	
14	4 26 37.21	20 52 41.6	.7179116	18 54.2	57 9 12.4	0 52 16.6	.700	
15	4 27 11.56	20 53 55.0	.7166998	18 50.9	57 14 33.5	0 52 11.1	.700	
16	4 27 45.35	20 55 6.6	.7154793	18 47.5	57 19 54.6	0 52 5.6	.700	
17	4 28 18.57	20 56 16.4	.7142504	18 44.1	57 25 15.7	0 52 0.1	.700	
18	4 28 51.20	20 57 24.5	.7130131	18 40.7	57 30 36.7	0 51 54.6	.700	
19	4 29 23.25	20 58 30.9	.7117677	18 37.3	57 35 57.7	0 51 49.0	.700	
20	4 29 54.70	20 59 35.5	.7105143	18 33.9	57 41 18.6	0 51 43.5	.700	
21	4 30 25.55	21 0 38.5	.7092531	18 30.4	57 46 39.5	0 51 38.0	.700	
22	4 30 55.79	21 1 39.7	.7079843	18 27.0	57 52 0.4	0 51 32.4	.700	
23	4 31 25.41	21 2 39.3	.7067081	18 23.6	57 57 21.3	0 51 26.9	.700	
24	4 31 54.41	21 3 37.1	.7054246	18 20.1	58 2 42.1	0 51 21.3	.700	
25	4 32 22.77	21 4 33.2	.7041342	18 16.6	58 8 2.9	0 51 15.7	.700	
26	4 32 50.49	21 5 27.6	.7028369	18 13.2	58 13 23.7	0 51 10.1	.700	
27	4 33 17.55	21 6 20.3	.7015331	18 9.7	58 18 44.4	0 51 4.5	.700	
28	4 33 43.95	21 7 11.3	.7002230	18 6.2	58 24 5.1	0 50 58.9	.700	
29	4 34 9.67	21 8 0.5	.6989069	18 2.7	58 29 25.7	0 50 53.3	.700	
30	4 34 34.71	21 8 48.1	.6975850	17 59.1	58 34 46.3	0 50 47.7	.700	
31	4 34 59.06	21 9 34.0	.6962577	17 55.6	58 40 6.9	0 50 42.1	.700	
32	4 35 22.71	N. 21 10 18.2	0.6949252	17 52.0	58 45 27.4	S. 0 50 36.5	0.701	

SEPTEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
35 22.71	N. 21 10 18.2	0.6949252	17 52.0	58 45 27.4	S. 0 50 36.5	0.7010480
35 45.65	21 11 0.8	.6935878	17 48.5	58 50 47.9	0 50 30.9	.7010712
36 7.88	21 11 41.7	.6922458	17 44.9	58 56 8.3	0 50 25.2	.7010945
36 29.39	21 12 21.0	.6908996	17 41.3	59 1 28.7	0 50 19.6	.7011179
36 50.17	21 12 58.6	.6895495	17 37.7	59 6 49.1	0 50 13.9	.7011413
37 10.21	21 13 34.5	.6881959	17 34.1	59 12 9.4	0 50 8.3	.7011648
37 29.51	21 14 8.7	.6868392	17 30.5	59 17 29.7	0 50 2.6	.7011883
37 48.06	21 14 41.2	.6854796	17 26.9	59 22 50.0	0 49 56.9	.7012119
38 5.85	21 15 12.1	.6841176	17 23.2	59 28 10.2	0 49 51.3	.7012356
38 22.88	21 15 41.4	.6827535	17 19.5	59 33 30.4	0 49 45.6	.7012593
38 39.14	21 16 9.1	.6813876	17 15.9	59 38 50.6	0 49 39.9	.7012830
38 54.62	21 16 35.2	.6800203	17 12.2	59 44 10.7	0 49 34.2	.7013068
39 9.33	21 16 59.7	.6786519	17 8.5	59 49 30.8	0 49 28.5	.7013306
39 23.25	21 17 22.7	.6772829	17 4.8	59 54 50.9	0 49 22.8	.7013544
39 36.39	21 17 44.0	.6759136	17 1.1	60 0 10.9	0 49 17.1	.7013783
39 48.73	21 18 3.8	.6745443	16 57.3	60 5 30.9	0 49 11.3	.7014022
40 0.26	21 18 22.0	.6731754	16 53.6	60 10 50.9	0 49 5.6	.7014261
40 10.99	21 18 38.6	.6718073	16 49.8	60 16 10.8	0 48 59.9	.7014501
40 20.91	21 18 53.6	.6704404	16 46.0	60 21 30.7	0 48 54.1	.7014741
40 30.01	21 19 7.1	.6690751	16 42.2	60 26 50.6	0 48 48.4	.7014982
40 38.29	21 19 19.0	.6677119	16 38.4	60 32 10.4	0 48 42.6	.7015223
40 45.75	21 19 29.4	.6663512	16 34.6	60 37 30.2	0 48 36.8	.7015464
40 52.37	21 19 38.2	.6649933	16 30.8	60 42 49.9	0 48 31.1	.7015706
40 58.15	21 19 45.5	.6636388	16 26.9	60 48 9.6	0 48 25.3	.7015948
41 3.09	21 19 51.2	.6622880	16 23.1	60 53 29.3	0 48 19.5	.7016191
41 7.18	21 19 55.3	.6609414	16 19.2	60 58 48.9	0 48 13.7	.7016434
41 10.41	21 19 57.8	.6595996	16 15.3	61 4 8.5	0 48 7.9	.7016677
41 12.79	21 19 58.7	.6582631	16 11.4	61 9 28.1	0 48 2.1	.7016920
41 14.31	21 19 58.0	.6569323	16 7.5	61 14 47.6	0 47 56.3	.7017164
41 14.97	21 19 55.8	.6556079	16 3.6	61 20 7.1	0 47 50.5	.7017407
41 14.77	N. 21 19 52.0	0.6542903	15 59.6	61 25 26.5	S. 0 47 44.7	0.7017651

OCTOBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ^{''}		^h ^m	[°] ['] ^{''}	[°] ['] ^{''}	
1	4 41 14.77	N. 21 19 52.0	0.6542903	15 59.6	61 25 26.5	S. 0 47 44.7	0.701
2	4 41 13.71	21 19 46.6	.6529802	15 55.7	61 30 45.9	0 47 38.8	.701
3	4 41 11.78	21 19 39.7	.6516781	15 51.7	61 36 5.3	0 47 33.0	.701
4	4 41 8.99	21 19 31.2	.6503846	15 47.7	61 41 24.7	0 47 27.2	.701
5	4 41 5.34	21 19 21.2	.6491002	15 43.7	61 46 44.0	0 47 21.3	.701
6	4 41 0.83	21 19 9.6	.6478256	15 39.7	61 52 3.3	0 47 15.5	.701
7	4 40 55.46	21 18 56.5	.6465613	15 35.7	61 57 22.5	0 47 9.6	.701
8	4 40 49.22	21 18 41.9	.6453080	15 31.6	62 2 41.7	0 47 3.7	.701
9	4 40 42.13	21 18 25.7	.6440661	15 27.6	62 8 0.9	0 46 57.9	.701
10	4 40 34.19	21 18 7.9	.6428362	15 23.5	62 13 20.0	0 46 52.0	.701
11	4 40 25.40	21 17 48.6	.6416189	15 19.4	62 18 39.1	0 46 46.1	.701
12	4 40 15.77	21 17 27.7	.6404148	15 15.3	62 23 58.2	0 46 40.2	.701
13	4 40 5.30	21 17 5.2	.6392243	15 11.2	62 29 17.2	0 46 34.4	.701
14	4 39 54.00	21 16 41.2	.6380481	15 7.1	62 34 36.2	0 46 28.5	.701
15	4 39 41.87	21 16 15.8	.6368868	15 2.9	62 39 55.2	0 46 22.6	.701
16	4 39 28.91	21 15 48.9	.6357410	14 58.8	62 45 14.1	0 46 16.7	.701
17	4 39 15.14	21 15 20.6	.6346111	14 54.6	62 50 33.0	0 46 10.8	.701
18	4 39 0.55	21 14 50.8	.6334978	14 50.4	62 55 51.8	0 46 4.8	.701
19	4 38 45.16	21 14 19.5	.6324015	14 46.2	63 1 10.6	0 45 58.9	.701
20	4 38 28.97	21 13 46.7	.6313229	14 42.0	63 6 29.4	0 45 53.0	.701
21	4 38 12.00	21 13 12.3	.6302626	14 37.8	63 11 48.1	0 45 47.0	.701
22	4 37 54.25	21 12 36.4	.6292212	14 33.6	63 17 6.8	0 45 41.1	.701
23	4 37 35.72	21 11 59.0	.6281992	14 29.3	63 22 25.5	0 45 35.1	.701
24	4 37 16.43	21 11 20.1	.6271974	14 25.1	63 27 44.1	0 45 29.2	.701
25	4 36 56.38	21 10 39.7	.6262163	14 20.8	63 33 2.7	0 45 23.2	.701
26	4 36 35.59	21 9 57.9	.6252566	14 16.5	63 38 21.2	0 45 17.3	.701
27	4 36 14.08	21 9 14.6	.6243189	14 12.2	63 43 39.7	0 45 11.3	.701
28	4 35 51.85	21 8 29.9	.6234036	14 7.9	63 48 58.2	0 45 5.3	.701
29	4 35 28.92	21 7 43.8	.6225115	14 3.6	63 54 16.6	0 44 59.4	.701
30	4 35 5.30	21 6 56.3	.6216431	13 59.3	63 59 35.0	0 44 53.4	.701
31	4 34 41.00	21 6 7.4	.6207990	13 54.9	64 4 53.4	0 44 47.4	.701
2	4 34 16.05	N. 21 5 17.1	0.6199797	13 50.6	64 10 11.8	S. 0 44 41.4	0.701

NOVEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
h m s	N. ° ' "	° ' "	h m	° ' "	S. ° ' "	° ' "
34 16.05	21 5 17.1	0.6199797	13 50.6	64 10 11.8	0 44 41.4	0.7025350
33 50.46	21 4 25.4	0.6191858	13 46.2	64 15 30.1	0 44 35.4	0.7025603
33 24.25	21 3 32.4	0.6184179	13 41.8	64 20 48.4	0 44 29.3	0.7025855
32 57.43	21 2 38.0	0.6176764	13 37.5	64 26 6.6	0 44 23.3	0.7026108
32 30.04	21 1 42.4	0.6169620	13 33.1	64 31 24.8	0 44 17.3	0.7026361
32 2.08	21 0 45.6	0.6162751	13 28.7	64 36 43.0	0 44 11.3	0.7026614
31 33.58	20 59 47.6	0.6156163	13 24.2	64 42 1.2	0 44 5.2	0.7026868
31 4.56	20 58 48.3	0.6149859	13 19.8	64 47 19.3	0 43 59.2	0.7027122
30 35.04	20 57 47.9	0.6143845	13 15.4	64 52 37.4	0 43 53.1	0.7027377
30 5.04	20 56 46.3	0.6138124	13 11.0	64 57 55.4	0 43 47.1	0.7027632
29 34.59	20 55 43.6	0.6132700	13 6.5	65 3 13.4	0 43 41.0	0.7027888
29 3.70	20 54 39.9	0.6127576	13 2.1	65 8 31.3	0 43 34.9	0.7028144
28 32.40	20 53 35.1	0.6122756	12 57.6	65 13 49.2	0 43 28.8	0.7028400
28 0.71	20 52 29.4	0.6118242	12 53.2	65 19 7.1	0 43 22.8	0.7028657
27 28.65	20 51 22.7	0.6114039	12 48.7	65 24 24.9	0 43 16.7	0.7028914
26 56.25	20 50 15.1	0.6110149	12 44.3	65 29 42.7	0 43 10.6	0.7029171
26 23.53	20 49 6.6	0.6106576	12 39.8	65 35 0.5	0 43 4.5	0.7029428
25 50.52	20 47 57.3	0.6103321	12 35.3	65 40 18.2	0 42 58.4	0.7029686
25 17.23	20 46 47.2	0.6100389	12 30.8	65 45 35.9	0 42 52.3	0.7029943
24 43.70	20 45 36.4	0.6097781	12 26.3	65 50 53.5	0 42 46.2	0.7030201
24 9.95	20 44 24.8	0.6095500	12 21.8	65 56 11.1	0 42 40.1	0.7030459
23 36.00	20 43 12.6	0.6093548	12 17.3	66 1 28.7	0 42 34.0	0.7030718
23 1.88	20 41 59.8	0.6091928	12 12.8	66 6 46.3	0 42 27.8	0.7030977
22 27.61	20 40 46.4	0.6090640	12 8.3	66 12 3.8	0 42 21.7	0.7031236
21 53.21	20 39 32.6	0.6089688	12 3.8	66 17 21.3	0 42 15.6	0.7031496
21 18.72	20 38 18.3	0.6089073	11 59.3	66 22 38.7	0 42 9.4	0.7031756
20 44.16	20 37 3.7	0.6088795	11 54.8	66 27 56.1	0 42 3.3	0.7032016
20 9.57	20 35 48.8	0.6088855	11 50.3	66 33 13.4	0 41 57.1	0.7032276
19 34.97	20 34 33.6	0.6089254	11 45.8	66 38 30.7	0 41 51.0	0.7032536
19 0.39	20 33 18.2	0.6089991	11 41.3	66 43 48.0	0 41 44.8	0.7032797
18 25.85	N. 20 32 2.7	0.6091066	11 36.8	66 49 5.2	S. 0 41 38.7	0.7033057

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No.	
	^{h m s}	^{° ′ ″}		^{h m}	^{° ′ ″}	^{° ′ ″}		
1	4 18 25.85	N. 20 32 2.7	0.6091066	11 36.8	66 49 5.2	S. 0 41 38.7	0.703	
2	4 17 51.39	20 30 47.1	.6092479	11 32.3	66 54 22.4	0 41 32.5	.703	
3	4 17 17.03	20 29 31.6	.6094229	11 27.8	66 59 39.6	0 41 26.3	.703	
4	4 16 42.80	20 28 16.2	.6096315	11 23.3	67 4 56.7	0 41 20.2	.703	
5	4 16 8.73	20 27 0.9	.6098736	11 18.8	67 10 13.8	0 41 14.0	.703	
6	4 15 34.85	20 25 45.9	.6101489	11 14.3	67 15 30.9	0 41 7.8	.703	
7	4 15 1.18	20 24 31.2	.6104574	11 9.8	67 20 48.0	0 41 1.6	.703	
8	4 14 27.75	20 23 16.9	.6107988	11 5.3	67 26 5.0	0 40 55.4	.703	
9	4 13 54.59	20 22 3.1	.6111730	11 0.9	67 31 22.0	0 40 49.2	.703	
10	4 13 21.71	20 20 49.8	.6115796	10 56.4	67 36 38.9	0 40 43.0	.703	
11	4 12 49.14	20 19 37.2	.6120185	10 51.9	67 41 55.8	0 40 36.8	.703	
12	4 12 16.91	20 18 25.2	.6124893	10 47.4	67 47 12.6	0 40 30.6	.703	
13	4 11 45.04	20 17 13.9	.6129916	10 43.0	67 52 29.4	0 40 24.3	.703	
14	4 11 13.54	20 16 3.5	.6135250	10 38.5	67 57 46.2	0 40 18.1	.703	
15	4 10 42.45	20 14 54.0	.6140892	10 34.1	68 3 2.9	0 40 11.9	.703	
16	4 10 11.78	20 13 45.4	.6146838	10 29.6	68 8 19.6	0 40 5.6	.703	
17	4 9 41.56	20 12 37.8	.6153084	10 25.2	68 13 36.2	0 39 59.4	.703	
18	4 9 11.81	20 11 31.3	.6159627	10 20.8	68 18 52.8	0 39 53.1	.703	
19	4 8 42.55	20 10 25.8	.6166461	10 16.4	68 24 9.4	0 39 46.9	.703	
20	4 8 13.79	20 9 21.5	.6173583	10 12.0	68 29 25.9	0 39 40.6	.703	
21	4 7 45.56	20 8 18.4	.6180989	10 7.6	68 34 42.4	0 39 34.4	.703	
22	4 7 17.88	20 7 16.7	.6188676	10 3.2	68 39 58.9	0 39 28.1	.703	
23	4 6 50.77	20 6 16.4	.6196638	9 58.8	68 45 15.3	0 39 21.8	.703	
24	4 6 24.24	20 5 17.6	.6204872	9 54.5	68 50 31.7	0 39 15.5	.703	
25	4 5 58.31	20 4 20.3	.6213373	9 50.1	68 55 48.0	0 39 9.3	.703	
26	4 5 33.01	20 3 24.5	.6222135	9 45.8	69 1 4.3	0 39 3.0	.703	
27	4 5 8.35	20 2 30.3	.6231154	9 41.4	69 6 20.6	0 38 56.7	.703	
28	4 4 44.34	20 1 37.9	.6240424	9 37.1	69 11 36.8	0 38 50.4	.703	
29	4 4 21.01	20 0 47.2	.6249941	9 32.8	69 16 53.0	0 38 44.1	.703	
30	4 3 58.37	19 59 58.3	.6259699	9 28.5	69 22 9.1	0 38 37.8	.703	
31	4 3 36.44	N. 19 59 11.1	0.6269693	9 24.2	69 27 25.2	S. 0 38 31.5	0.703	

JANUARY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
h m s	° ' "		h m	° ' "	° ' "	
2 42 13.15	S. 1 57 9.0	0.9773918	17 56.8	184 33 4.4	N. 2 22 21.0	0.9798331
2 42 20.69	1 57 38.7	.9766318	17 53.0	184 35 4.7	2 22 22.6	.9798471
2 42 27.84	1 58 5.9	.9758705	17 49.1	184 37 5.0	2 22 24.2	.9798611
2 42 34.61	1 58 30.5	.9751084	17 45.3	184 39 5.2	2 22 25.7	.9798751
2 42 40.99	1 58 52.6	.9743456	17 41.4	184 41 5.5	2 22 27.3	.9798891
2 42 46.98	1 59 12.2	.9735824	17 37.6	184 43 5.7	2 22 28.9	.9799031
2 42 52.58	1 59 29.3	.9728190	17 33.7	184 45 5.9	2 22 30.5	.9799171
2 42 57.78	1 59 43.9	.9720557	17 29.9	184 47 6.2	2 22 32.0	.9799311
2 43 2.59	1 59 55.9	.9712926	17 26.0	184 49 6.4	2 22 33.6	.9799451
2 43 7.00	2 0 5.3	.9705301	17 22.1	184 51 6.6	2 22 35.2	.9799591
2 43 11.01	2 0 12.2	.9697684	17 18.3	184 53 6.9	2 22 36.7	.9799730
2 43 14.63	2 0 16.6	.9690078	17 14.4	184 55 7.0	2 22 38.3	.9799870
2 43 17.85	2 0 18.4	.9682484	17 10.5	184 57 7.2	2 22 39.8	.9800010
2 43 20.68	2 0 17.7	.9674907	17 6.6	184 59 7.5	2 22 41.4	.9800150
2 43 23.11	2 0 14.5	.9667349	17 2.8	185 1 7.7	2 22 42.9	.9800290
2 43 25.14	2 0 8.6	.9659812	16 58.9	185 3 7.9	2 22 44.5	.9800429
2 43 26.76	2 0 0.2	.9652298	16 55.0	185 5 8.0	2 22 46.0	.9800568
2 43 27.98	1 59 49.3	.9644811	16 51.1	185 7 8.3	2 22 47.5	.9800707
2 43 28.81	1 59 36.0	.9637353	16 47.2	185 9 8.4	2 22 49.1	.9800848
2 43 29.23	1 59 20.1	.9629926	16 43.2	185 11 8.5	2 22 50.6	.9800987
2 43 29.26	1 59 1.7	.9622534	16 39.3	185 13 8.6	2 22 52.1	.9801126
2 43 28.89	1 58 40.8	.9615178	16 35.4	185 15 8.8	2 22 53.6	.9801265
2 43 28.13	1 58 17.5	.9607859	16 31.4	185 17 8.9	2 22 55.2	.9801406
2 43 26.97	1 57 51.8	.9600582	16 27.5	185 19 8.9	2 22 56.7	.9801545
2 43 25.41	1 57 23.5	.9593349	16 23.5	185 21 9.0	2 22 58.2	.9801685
2 43 23.46	1 56 52.8	.9586162	16 19.5	185 23 9.1	2 22 59.7	.9801824
2 43 21.11	1 56 19.6	.9579024	16 15.5	185 25 9.1	2 23 1.2	.9801964
2 43 18.37	1 55 44.2	.9571937	16 11.5	185 27 9.2	2 23 2.7	.9802103
2 43 15.25	1 55 6.3	.9564905	16 7.5	185 29 9.2	2 23 4.2	.9802243
2 43 11.74	1 54 26.0	.9557929	16 3.5	185 31 9.3	2 23 5.7	.9802382
2 43 7.84	1 53 43.3	.9551011	15 59.5	185 33 9.4	2 23 7.2	.9802523
2 43 3.56	S. 1 52 58.4	0.9544156	15 55.5	185 35 9.4	N. 2 23 8.7	0.9802662

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. Rad. V	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	12 43 35.56	S. 1 52 58.4	0.9544156	15 55.5	185 35 9.4	N. 2 23 8.7	0.9802	
2	12 42 58.89	1 52 11.0	.9537365	15 51.5	185 37 9.4	2 23 10.2	.9802	
3	12 42 53.84	1 51 21.3	.9530641	15 47.5	185 39 9.4	2 23 11.7	.9802	
4	12 42 48.41	1 50 29.3	.9523987	15 43.5	185 41 9.4	2 23 13.2	.9803	
5	12 42 42.60	1 49 35.2	.9517406	15 39.4	185 43 9.4	2 23 14.6	.9803	
6	12 42 36.42	1 48 38.8	.9510901	15 35.4	185 45 9.3	2 23 16.1	.9803	
7	12 42 29.87	1 47 40.2	.9504474	15 31.4	185 47 9.3	2 23 17.6	.9803	
8	12 42 22.95	1 46 39.3	.9498129	15 27.3	185 49 9.2	2 23 19.1	.9803	
9	12 42 15.67	1 45 36.3	.9491868	15 23.3	185 51 9.2	2 23 20.5	.9803	
10	12 42 8.03	1 44 31.2	.9485693	15 19.2	185 53 9.1	2 23 22.0	.9803	
11	12 42 0.03	1 43 24.0	.9479608	15 15.1	185 55 9.0	2 23 23.5	.9804	
12	12 41 51.68	1 42 14.7	.9473614	15 11.1	185 57 9.0	2 23 24.9	.9804	
13	12 41 42.98	1 41 3.4	.9467715	15 7.0	185 59 8.9	2 23 26.4	.9804	
14	12 41 33.95	1 39 50.1	.9461914	15 2.9	186 1 8.8	2 23 27.8	.9804	
15	12 41 24.58	1 38 34.9	.9456212	14 58.8	186 3 8.6	2 23 29.3	.9804	
16	12 41 14.88	1 37 17.9	.9450613	14 54.7	186 5 8.5	2 23 30.7	.9804	
17	12 41 4.85	1 35 58.9	.9445118	14 50.6	186 7 8.4	2 23 32.2	.9804	
18	12 40 54.51	1 34 38.1	.9439729	14 46.5	186 9 8.3	2 23 33.6	.9804	
19	12 40 43.85	1 33 15.5	.9434449	14 42.4	186 11 8.2	2 23 35.0	.9804	
20	12 40 32.89	1 31 51.2	.9429279	14 38.3	186 13 8.1	2 23 36.5	.9804	
21	12 40 21.62	1 30 25.2	.9424222	14 34.1	186 15 7.8	2 23 37.9	.9804	
22	12 40 10.06	1 28 57.6	.9419280	14 30.0	186 17 7.7	2 23 39.3	.9804	
23	12 39 58.21	1 27 28.4	.9414455	14 25.9	186 19 7.6	2 23 40.7	.9804	
24	12 39 46.07	1 25 57.7	.9409748	14 21.8	186 21 7.3	2 23 42.2	.9804	
25	12 39 33.65	1 24 25.3	.9405163	14 17.6	186 23 7.2	2 23 43.6	.9804	
26	12 39 20.97	1 22 51.5	.9400700	14 13.5	186 25 7.0	2 23 45.0	.9804	
27	12 39 8.02	1 21 16.3	.9396362	14 9.4	186 27 6.7	2 23 46.4	.9804	
28	12 38 54.81	1 19 39.7	.9392151	14 5.2	186 29 6.6	2 23 47.8	.9804	
29	12 38 41.34	S. 1 18 1.7	0.9388069	14 1.1	186 31 6.4	N. 2 23 49.2	0.9804	

SATURN.

337

MARCH, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
12 38 41.34 S.	1 18 1.7	0.9388069	14 1.1	186 31 6.4	N. 2 23 49.2	0.9806563
12 38 27.63	1 16 22.5	.9384119	13 56.9	186 33 6.1	2 23 50.6	.9806703
12 38 13.68	1 14 42.0	.9380301	13 52.7	186 35 5.9	2 23 52.0	.9806842
12 37 59.50	1 13 0.3	.9376617	13 48.6	186 37 5.7	2 23 53.4	.9806981
12 37 45.09	1 11 17.4	.9373068	13 44.4	186 39 5.3	2 23 54.8	.9807120
12 37 30.47	1 9 33.4	.9369658	13 40.2	186 41 5.1	2 23 56.2	.9807259
12 37 15.64	1 7 48.4	.9366389	13 36.0	186 43 4.8	2 23 57.6	.9807398
12 37 0.61	1 6 2.4	.9363264	13 31.9	186 45 4.5	2 23 59.0	.9807537
12 36 45.38	1 4 15.4	.9360283	13 27.7	186 47 4.3	2 24 0.4	.9807675
12 36 29.97	1 2 27.7	.9357446	13 23.5	186 49 3.9	2 24 1.8	.9807815
12 36 14.38	1 0 39.2	.9354755	13 19.3	186 51 3.6	2 24 3.2	.9807954
12 35 58.63	0 58 50.0	.9352210	13 15.1	186 53 3.4	2 24 4.6	.9808093
12 35 42.72	0 57 0.1	.9349813	13 10.9	186 55 3.0	2 24 5.9	.9808231
12 35 26.67	0 55 9.7	.9347565	13 6.7	186 57 2.7	2 24 7.3	.9808370
12 35 10.49	0 53 18.7	.9345468	13 2.5	186 59 2.3	2 24 8.7	.9808509
12 34 54.19	0 51 27.2	.9343524	12 58.3	187 1 2.0	2 24 10.1	.9808648
12 34 37.77	0 49 35.1	.9341732	12 54.1	187 3 1.6	2 24 11.4	.9808788
12 34 21.25	0 47 42.8	.9340093	12 49.9	187 5 1.3	2 24 12.8	.9808927
12 34 4.62	0 45 50.2	.9338608	12 45.7	187 7 0.9	2 24 14.2	.9809066
12 33 47.89	0 43 57.4	.9337276	12 41.5	187 9 0.5	2 24 15.5	.9809205
12 33 31.07	0 42 4.3	.9336098	12 37.2	187 11 0.2	2 24 16.9	.9809343
12 33 14.18	0 40 11.2	.9335075	12 33.0	187 12 59.7	2 24 18.2	.9809482
12 32 57.23	0 38 18.1	.9334207	12 28.8	187 14 59.3	2 24 19.6	.9809621
12 32 40.22	0 36 25.0	.9333495	12 24.6	187 16 58.9	2 24 20.9	.9809760
12 32 23.17	0 34 31.8	.9332939	12 20.4	187 18 58.5	2 24 22.3	.9809899
12 32 6.09	0 32 38.8	.9332537	12 16.2	187 20 58.0	2 24 23.6	.9810038
12 31 48.98	0 30 46.0	.9332290	12 11.9	187 22 57.6	2 24 24.9	.9810177
12 31 31.84	0 28 53.4	.9332199	12 7.7	187 24 57.2	2 24 26.3	.9810315
12 31 14.69	0 27 0.9	.9332263	12 3.5	187 26 56.7	2 24 27.6	.9810454
12 30 57.53	0 25 8.8	.9332484	11 59.3	187 28 56.3	2 24 28.9	.9810593
12 30 40.38	0 23 17.2	.9332860	11 55.1	187 30 55.8	2 24 30.2	.9810732
12 30 23.25 S.	0 21 26.1	0.9333393	11 50.9	187 32 55.4	N. 2 24 31.5	0.9810871

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			Days of the Month.
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. d Rad. Vel.	
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.		
1	12 30 23.25 S.	0 21 26.1	0.9333393	11 50.9	187 32 55.4	N.2 24 31.5	0.981087	1
2	12 30 6.15	0 19 35.5	.9334092	11 46.7	187 34 54.9	2 24 32.8	.981100	2
3	12 29 49.05	0 17 45.6	.9334926	11 42.4	187 36 54.4	2 24 34.1	.981112	3
4	12 29 32.05	0 15 56.3	.9335924	11 38.2	187 38 54.0	2 24 35.4	.981125	4
5	12 29 15.08	0 14 7.6	.9337077	11 34.0	187 40 53.5	2 24 36.7	.981138	5
6	12 28 56.17	0 12 19.6	.9338384	11 29.8	187 42 53.0	2 24 38.0	.981151	6
7	12 28 41.33	0 10 32.5	.9339846	11 25.6	187 44 52.5	2 24 39.3	.981164	7
8	12 28 24.57	0 8 46.3	.9341460	11 21.4	187 46 52.0	2 24 40.6	.981177	8
9	12 28 7.91	0 7 1.0	.9343226	11 17.2	187 48 51.5	2 24 41.9	.981190	9
10	12 27 51.35	0 5 16.7	.9345142	11 13.0	187 50 51.0	2 24 43.2	.981212	10
11	12 27 34.90	0 3 33.5	.9347209	11 8.7	187 52 50.4	2 24 44.5	.981225	11
12	12 27 18.57	0 1 51.4	.9349423	11 4.5	187 54 49.9	2 24 45.8	.981238	12
13	12 27 2.36 S.	0 0 10.5	.9351785	11 0.3	187 56 49.4	2 24 47.1	.981251	13
14	12 26 46.29 N.	0 1 29.2	.9354293	10 56.1	187 58 48.8	2 24 48.3	.981264	14
15	12 26 30.37	0 3 7.6	.9356945	10 51.9	188 0 48.2	2 24 49.6	.981277	15
16	12 26 14.60	0 4 44.7	.9359741	10 47.7	188 2 47.7	2 24 50.9	.981290	16
17	12 25 58.99	0 6 20.4	.9362678	10 43.5	188 4 47.1	2 24 52.2	.981303	17
18	12 25 43.55	0 7 54.7	.9365755	10 39.4	188 6 46.6	2 24 53.4	.981316	18
19	12 25 28.28	0 9 27.5	.9368969	10 35.2	188 8 45.9	2 24 54.7	.981329	19
20	12 25 13.20	0 10 58.8	.9372320	10 31.0	188 10 45.3	2 24 56.0	.981342	20
21	12 24 58.31	0 12 28.7	.9375806	10 26.8	188 12 44.8	2 24 57.2	.981355	21
22	12 24 43.62	0 13 57.0	.9379425	10 22.7	188 14 44.2	2 24 58.5	.981368	22
23	12 24 29.13	0 15 23.6	.9383175	10 18.5	188 16 43.6	2 24 59.7	.981381	23
24	12 24 14.85	0 16 48.6	.9387055	10 14.3	188 18 43.0	2 25 1.0	.981403	24
25	12 24 0.79	0 18 11.8	.9391062	10 10.1	188 20 42.3	2 25 2.2	.981419	25
26	12 23 46.95	0 19 33.3	.9395195	10 6.0	188 22 41.7	2 25 3.5	.981435	26
27	12 23 33.35	0 20 53.0	.9399454	10 1.8	188 24 41.1	2 25 4.7	.981447	27
28	12 23 19.98	0 22 10.9	.9403833	9 57.7	188 26 40.5	2 25 5.9	.981461	28
29	12 23 6.86	0 23 26.9	.9408337	9 53.5	188 28 39.9	2 25 7.2	.981475	29
30	12 22 53.99	0 24 41.0	.9412958	9 49.4	188 30 39.2	2 25 8.4	.981489	30
31	12 22 41.38 N.	0 25	.9417697	9 45.3	188 32 38.6	N.2 25 9.6	0.981502	31

SATURN.

339

MAY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
m s	° ' "		h m	° ' "	° ' "	
22 41'38	N.0 25 53'1	0'9417697	9 45'3	188 32 38'6	N.2 25 9'6	0'9815028
22 29'03	0 27 3'3	'9422550	9 41'2	188 34 37'9	2 25 10'8	'9815166
22 16'95	0 28 11'5	'9427518	9 37'0	188 36 37'3	2 25 12'1	'9815305
22 5'14	0 29 17'6	'9432597	9 32'9	188 38 36'6	2 25 13'3	'9815443
21 53'61	0 30 21'7	'9437785	9 28'8	188 40 35'9	2 25 14'5	'9815581
21 42'37	0 31 23'7	'9443079	9 24'7	188 42 35'2	2 25 15'7	'9815719
21 31'42	0 32 23'6	'9448477	9 20'5	188 44 34'5	2 25 16'9	'9815858
21 20'77	0 33 21'3	'9453977	9 16'4	188 46 33'8	2 25 18'1	'9815996
21 10'43	0 34 16'9	'9459577	9 12'3	188 48 33'1	2 25 19'3	'9816134
21 0'39	0 35 10'2	'9465274	9 8'2	188 50 32'4	2 25 20'5	'9816272
20 50'66	0 36 1'3	'9471067	9 4'1	188 52 31'7	2 25 21'7	'9816411
20 41'25	0 36 50'1	'9476951	9 0'1	188 54 30'9	2 25 22'9	'9816549
20 32'17	0 37 36'6	'9482925	8 56'0	188 56 30'2	2 25 24'1	'9816687
20 23'42	0 38 20'8	'9488986	8 51'9	188 58 29'5	2 25 25'3	'9816825
20 14'99	0 39 2'7	'9495132	8 47'8	189 0 28'8	2 25 26'5	'9816963
20 6'89	0 39 42'2	'9501359	8 43'8	189 2 28'1	2 25 27'6	'9817101
19 59'13	0 40 19'4	'9507666	8 39'7	189 4 27'3	2 25 28'8	'9817240
19 51'70	0 40 54'2	'9514050	8 35'6	189 6 26'5	2 25 30'0	'9817378
19 44'61	0 41 26'6	'9520508	8 31'6	189 8 25'8	2 25 31'2	'9817516
19 37'86	0 41 56'7	'9527038	8 27'5	189 10 25'0	2 25 32'3	'9817654
19 31'47	0 42 24'5	'9533639	8 23'5	189 12 24'2	2 25 33'5	'9817792
19 25'43	0 42 49'9	'9540307	8 19'5	189 14 23'5	2 25 34'7	'9817930
19 19'74	0 43 12'8	'9547040	8 15'4	189 16 22'7	2 25 35'8	'9818068
19 14'40	0 43 33'3	'9553835	8 11'4	189 18 21'9	2 25 37'0	'9818206
19 9'41	0 43 51'4	'9560691	8 7'4	189 20 21'2	2 25 38'1	'9818344
19 4'77	0 44 7'1	'9567605	8 3'4	189 22 20'4	2 25 39'3	'9818482
19 0'49	0 44 20'3	'9574575	7 59'4	189 24 19'5	2 25 40'4	'9818620
18 56'57	0 44 31'1	'9581598	7 55'5	189 26 18'7	2 25 41'6	'9818758
18 53'01	0 44 39'5	'9588671	7 51'5	189 28 17'9	2 25 42'7	'9818896
18 49'82	0 44 45'4	'9595793	7 47'5	189 30 17'0	2 25 43'8	'9819034
18 46'99	0 44 48'8	'9602963	7 43'5	189 32 16'2	2 25 45'0	'9819172
18 44'53	N.0 44 49'7	0'9610177	7 39'6	189 34 15'4	N.2 25 46'1	0'9819309

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. Rad. V.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	12 18 44 ^s 53	N. 0 44 49 ^s 7	0 ^h 9610177	7 39 ^m 6	189 34 15 ^s 4	N. 2 25 46 ^s 1	0 ^h 9819
2	12 18 42 ^s 43	0 44 48 ^s 2	9617433	7 35 ^m 6	189 36 14 ^s 5	2 25 47 ^s 2	9819
3	12 18 40 ^s 70	0 44 44 ^s 2	9624728	7 31 ^m 6	189 38 13 ^s 6	2 25 48 ^s 3	9819
4	12 18 39 ^s 35	0 44 37 ^s 7	9632061	7 27 ^m 7	189 40 12 ^s 8	2 25 49 ^s 5	9819
5	12 18 38 ^s 36	0 44 28 ^s 8	9639429	7 23 ^m 7	189 42 11 ^s 9	2 25 50 ^s 6	9819
6	12 18 37 ^s 75	0 44 17 ^s 4	9646828	7 19 ^m 8	189 44 11 ^s 1	2 25 51 ^s 7	9819
7	12 18 37 ^s 51	0 44 3 ^s 6	9654257	7 15 ^m 9	189 46 10 ^s 2	2 25 52 ^s 8	9820
8	12 18 37 ^s 64	0 43 47 ^s 3	9661713	7 11 ^m 9	189 48 9 ^s 3	2 25 53 ^s 9	9820
9	12 18 38 ^s 14	0 43 28 ^s 5	9669193	7 8 ^m 0	189 50 8 ^s 4	2 25 55 ^s 0	9820
10	12 18 39 ^s 02	0 43 7 ^s 3	9676697	7 4 ^m 1	189 52 7 ^s 5	2 25 56 ^s 1	9820
11	12 18 40 ^s 27	0 42 43 ^s 6	9684220	7 0 ^m 2	189 54 6 ^s 6	2 25 57 ^s 2	9820
12	12 18 41 ^s 90	0 42 17 ^s 5	9691761	6 56 ^m 3	189 56 5 ^s 7	2 25 58 ^s 3	9820
13	12 18 43 ^s 90	0 41 49 ^s 0	9699316	6 52 ^m 4	189 58 4 ^s 8	2 25 59 ^s 4	9820
14	12 18 46 ^s 27	0 41 18 ^s 1	9706886	6 48 ^m 5	190 0 3 ^s 9	2 26 0 ^s 5	9821
15	12 18 49 ^s 01	0 40 44 ^s 8	9714466	6 44 ^m 6	190 2 2 ^s 9	2 26 1 ^s 6	9821
16	12 18 52 ^s 11	0 40 9 ^s 1	9722054	6 40 ^m 7	190 4 2 ^s 0	2 26 2 ^s 7	9821
17	12 18 55 ^s 58	0 39 31 ^s 0	9729648	6 36 ^m 9	190 6 1 ^s 1	2 26 3 ^s 8	9821
18	12 18 59 ^s 41	0 38 50 ^s 6	9737247	6 33 ^m 0	190 8 0 ^s 1	2 26 4 ^s 9	9821
19	12 19 3 ^s 61	0 38 7 ^s 9	9744848	6 29 ^m 1	190 9 59 ^s 2	2 26 6 ^s 0	9821
20	12 19 8 ^s 17	0 37 22 ^s 8	9752450	6 25 ^m 2	190 11 58 ^s 2	2 26 7 ^s 1	9821
21	12 19 13 ^s 09	0 36 35 ^s 4	9760051	6 21 ^m 4	190 13 57 ^s 1	2 26 8 ^s 1	9822
22	12 19 18 ^s 37	0 35 45 ^s 6	9767648	6 17 ^m 5	190 15 56 ^s 2	2 26 9 ^s 2	9822
23	12 19 24 ^s 01	0 34 53 ^s 6	9775239	6 13 ^m 7	190 17 55 ^s 2	2 26 10 ^s 3	9822
24	12 19 30 ^s 01	0 33 59 ^s 3	9782823	6 9 ^m 8	190 19 54 ^s 2	2 26 11 ^s 4	9822
25	12 19 36 ^s 36	0 33 2 ^s 7	9790398	6 6 ^m 0	190 21 53 ^s 2	2 26 12 ^s 4	9822
26	12 19 43 ^s 07	0 32 3 ^s 9	9797963	6 2 ^m 2	190 23 52 ^s 2	2 26 13 ^s 5	9822
27	12 19 50 ^s 13	0 31 2 ^s 8	9805516	5 58 ^m 4	190 25 51 ^s 1	2 26 14 ^s 6	9822
28	12 19 57 ^s 55	0 29 59 ^s 4	9813054	5 54 ^m 6	190 27 50 ^s 1	2 26 15 ^s 6	9822
29	12 20 5 ^s 32	0 28 53 ^s 9	9820576	5 50 ^m 8	190 29 49 ^s 1	2 26 16 ^s 7	9822
30	12 20 13 ^s 43	0 27 46 ^s 2	9828080	5 47 ^m 0	190 31 48 ^s 0	2 26 17 ^s 7	9822
31	12 20 21 ^s 89	N. 0 26 36 ^s 3	0 ^h 9835564	5 43 ^m 2	190 33 47 ^s 0	N. 2 26 18 ^s 8	0 ^h 9822

SATURN.

341

JULY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	12 20 21.89	N. 0 26 36.3	0.9835564	5 43.2	190 33 47.0	N. 2 26 18.8	0.9823437
2	12 20 30.69	0 25 24.3	.9843027	5 39.4	190 35 45.9	2 26 19.8	.9823575
3	12 20 39.83	0 24 10.2	.9850466	5 35.7	190 37 44.9	2 26 20.9	.9823712
4	12 20 49.32	0 22 53.9	.9857880	5 31.9	190 39 43.8	2 26 21.9	.9823849
5	12 20 59.15	0 21 35.5	.9865266	5 28.1	190 41 42.7	2 26 22.9	.9823986
6	12 21 9.31	0 20 14.9	.9872623	5 24.4	190 43 41.6	2 26 24.0	.9824123
7	12 21 19.81	0 18 52.2	.9879949	5 20.6	190 45 40.5	2 26 25.0	.9824260
8	12 21 30.65	0 17 27.4	.9887241	5 16.9	190 47 39.4	2 26 26.0	.9824397
9	12 21 41.81	0 16 0.6	.9894499	5 13.1	190 49 38.2	2 26 27.0	.9824534
10	12 21 53.30	0 14 31.9	.9901721	5 9.4	190 51 37.1	2 26 28.0	.9824672
11	12 22 5.12	0 13 1.2	.9908905	5 5.6	190 53 36.0	2 26 29.0	.9824809
12	12 22 17.25	0 11 28.5	.9916051	5 1.9	190 55 34.8	2 26 30.0	.9824946
13	12 22 29.70	0 9 53.9	.9923155	4 58.2	190 57 33.6	2 26 31.0	.9825082
14	12 22 42.47	0 8 17.3	.9930216	4 54.5	190 59 32.5	2 26 32.0	.9825220
15	12 22 55.55	0 6 38.9	.9937232	4 50.8	191 1 31.3	2 26 33.0	.9825357
16	12 23 8.93	0 4 58.5	.9944204	4 47.1	191 3 30.1	2 26 34.0	.9825494
17	12 23 22.62	0 3 16.3	.9951129	4 43.4	191 5 28.9	2 26 35.0	.9825631
18	12 23 36.62	N. 0 1 32.3	.9958006	4 39.7	191 7 27.8	2 26 36.0	.9825768
19	12 23 50.91	S. 0 0 13.5	.9964834	4 36.0	191 9 26.5	2 26 37.0	.9825905
20	12 24 5.50	0 2 1.1	.9971611	4 32.3	191 11 25.3	2 26 38.0	.9826042
21	12 24 20.38	0 3 50.5	.9978336	4 28.6	191 13 24.2	2 26 39.0	.9826179
22	12 24 35.55	0 5 41.6	.9985008	4 24.9	191 15 22.9	2 26 40.0	.9826316
23	12 24 51.01	0 7 34.4	.9991626	4 21.3	191 17 21.7	2 26 40.9	.9826452
24	12 25 6.76	0 9 28.9	0.9998189	4 17.6	191 19 20.4	2 26 41.9	.9826589
25	12 25 22.79	0 11 25.1	1.0004695	4 13.9	191 21 19.1	2 26 42.9	.9826726
26	12 25 39.09	0 13 22.9	.0011144	4 10.2	191 23 18.0	2 26 43.9	.9826863
27	12 25 55.67	0 15 22.4	.0017533	4 6.6	191 25 16.7	2 26 44.8	.9827000
28	12 26 12.52	0 17 23.5	.0023863	4 2.9	191 27 15.4	2 26 45.8	.9827137
29	12 26 29.65	0 19 26.2	.0030132	3 59.3	191 29 14.1	2 26 46.8	.9827274
30	12 26 47.04	0 21 30.4	.0036339	3 55.6	191 31 12.8	2 26 47.7	.9827411
31	12 27 4.70	0 23 36.2	.0042483	3 52.0	191 33 11.5	2 26 48.7	.9827548
32	12 27 22.62	S. 0 25 43.5	1.0048561	3 48.4	191 35 10.3	N. 2 26 49.6	0.9827685

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.		Noon.	Noon.	No
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	12 27 22.62	S. 0 25 43.5	1.0048561	3 48.4	191 35 10.3	N. 2 26 49.6	0.982
2	12 27 40.79	0 27 52.3	.0054573	3 44.8	191 37 9.0	2 26 50.6	.982
3	12 27 59.22	0 30 2.5	.0060518	3 41.1	191 39 7.6	2 26 51.5	.982
4	12 28 17.90	0 32 14.2	.0066394	3 37.5	191 41 6.3	2 26 52.5	.982
5	12 28 36.83	0 34 27.3	.0072200	3 33.9	191 43 4.9	2 26 53.4	.982
6	12 28 56.00	0 36 41.8	.0077935	3 30.3	191 45 3.5	2 26 54.3	.982
7	12 29 15.42	0 38 57.7	.0083598	3 26.7	191 47 2.2	2 26 55.3	.982
8	12 29 35.08	0 41 14.9	.0089187	3 23.1	191 49 0.8	2 26 56.2	.982
9	12 29 54.97	0 43 33.4	.0094703	3 19.5	191 50 59.4	2 26 57.1	.982
10	12 30 15.09	0 45 53.2	.0100143	3 15.9	191 52 58.0	2 26 58.0	.982
11	12 30 35.43	0 48 14.3	.0105508	3 12.3	191 54 56.6	2 26 59.0	.982
12	12 30 55.99	0 50 36.6	.0110796	3 8.7	191 56 55.2	2 26 59.9	.982
13	12 31 16.77	0 53 0.1	.0116007	3 5.1	191 58 53.8	2 27 0.8	.982
14	12 31 37.77	0 55 24.7	.0121140	3 1.5	192 0 52.4	2 27 1.7	.982
15	12 31 58.97	0 57 50.5	.0126195	2 57.9	192 2 51.0	2 27 2.7	.982
16	12 32 20.38	1 0 17.6	.0131170	2 54.4	192 4 49.4	2 27 3.6	.982
17	12 32 42.00	1 2 45.7	.0136064	2 50.8	192 6 48.1	2 27 4.5	.982
18	12 33 3.82	1 5 14.8	.0140876	2 47.2	192 8 46.6	2 27 5.4	.982
19	12 33 25.83	1 7 44.9	.0145608	2 43.6	192 10 45.1	2 27 6.3	.982
20	12 33 48.04	1 10 16.2	.0150256	2 40.1	192 12 43.7	2 27 7.2	.982
21	12 34 10.44	1 12 48.4	.0154821	2 36.5	192 14 42.2	2 27 8.1	.982
22	12 34 33.02	1 15 21.6	.0159303	2 32.9	192 16 40.7	2 27 9.0	.982
23	12 34 55.79	1 17 55.7	.0163701	2 29.4	192 18 39.2	2 27 9.9	.982
24	12 35 18.74	1 20 30.8	.0168014	2 25.8	192 20 37.7	2 27 10.7	.982
25	12 35 41.86	1 23 6.8	.0172242	2 22.3	192 22 36.2	2 27 11.6	.982
26	12 36 5.16	1 25 43.6	.0176382	2 18.7	192 24 34.7	2 27 12.5	.982
27	12 36 28.64	1 28 21.2	.0180436	2 15.2	192 26 33.2	2 27 13.4	.982
28	12 36 52.28	1 30 59.7	.0184400	2 11.6	192 28 31.5	2 27 14.2	.982
29	12 37 16.09	1 33 39.0	.0188276	2 8.1	192 30 30.0	2 27 15.1	.982
30	12 37 40.05	1 36 19.2	.0192062	2 4.6	192 32 28.5	2 27 16.0	.982
31	12 38 4.16	1 39 0.3	.0195759	2 1.0	192 34 26.8	2 27 16.8	.982
32	12 38 28.42	S. 1 41 42.0	1.0199366	1 57.5	192 36 25.3	N. 2 27 17.7	0.982

SEPTEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	^h 12 ^m 38 ^s 28.42	S. 1 41 42.0	1.0199366	^h 1 57.5	^o 192 36 25.3	N. 2 27 17.7	0.9831915
2	12 38 52.83	1 44 24.4	.0202882	1 54.0	192 38 23.7	2 27 18.5	.9832051
3	12 39 17.38	1 47 7.6	.0206306	1 50.5	192 40 22.1	2 27 19.4	.9832188
4	12 39 42.08	1 49 51.3	.0209636	1 46.9	192 42 20.5	2 27 20.2	.9832324
5	12 40 6.92	1 52 35.6	.0212874	1 43.4	192 44 18.9	2 27 21.1	.9832461
6	12 40 31.89	1 55 20.5	.0216018	1 39.9	192 46 17.3	2 27 21.9	.9832597
7	12 40 56.99	1 58 5.9	.0219066	1 36.4	192 48 15.6	2 27 22.8	.9832732
8	12 41 22.22	2 0 52.0	.0222017	1 32.9	192 50 14.0	2 27 23.6	.9832869
9	12 41 47.57	2 3 38.5	.0224872	1 29.4	192 52 12.4	2 27 24.5	.9833004
10	12 42 13.03	2 6 25.5	.0227632	1 25.8	192 54 10.7	2 27 25.3	.9833140
11	12 42 38.61	2 9 13.1	.0230296	1 22.3	192 56 9.1	2 27 26.1	.9833276
12	12 43 4.29	2 12 1.0	.0232865	1 18.8	192 58 7.5	2 27 27.0	.9833413
13	12 43 30.08	2 14 49.3	.0235337	1 15.3	193 0 5.7	2 27 27.8	.9833548
14	12 43 55.96	2 17 37.8	.0237713	1 11.8	193 2 4.1	2 27 28.6	.9833684
15	12 44 21.94	2 20 26.7	.0239992	1 8.3	193 4 2.5	2 27 29.4	.9833820
16	12 44 48.02	2 23 16.1	.0242174	1 4.8	193 6 0.7	2 27 30.3	.9833957
17	12 45 14.19	2 26 5.7	.0244258	1 1.3	193 7 59.1	2 27 31.1	.9834093
18	12 45 40.45	2 28 55.6	.0246243	0 57.8	193 9 57.3	2 27 31.9	.9834229
19	12 46 6.79	2 31 45.7	.0248130	0 54.4	193 11 55.6	2 27 32.7	.9834364
20	12 46 33.21	2 34 36.1	.0249919	0 50.9	193 13 53.9	2 27 33.5	.9834500
21	12 46 59.70	2 37 26.6	.0251608	0 47.4	193 15 52.1	2 27 34.3	.9834635
22	12 47 26.26	2 40 17.4	.0253199	0 43.9	193 17 50.3	2 27 35.1	.9834771
23	12 47 52.89	2 43 8.2	.0254690	0 40.4	193 19 48.6	2 27 35.9	.9834907
24	12 48 19.59	2 45 59.1	.0256081	0 36.9	193 21 46.9	2 27 36.7	.9835043
25	12 48 46.35	2 48 50.2	.0257372	0 33.4	193 23 45.0	2 27 37.5	.9835179
26	12 49 13.17	2 51 41.4	.0258563	0 29.9	193 25 43.3	2 27 38.3	.9835314
27	12 49 40.04	2 54 32.7	.0259653	0 26.5	193 27 41.5	2 27 39.1	.9835450
28	12 50 6.97	2 57 24.0	.0260643	0 23.0	193 29 39.7	2 27 39.9	.9835586
29	12 50 33.95	3 0 15.3	.0261530	0 19.5	193 31 38.0	2 27 40.6	.9835721
30	12 51 0.96	3 3 6.6	.0262315	0 16.0	193 33 36.1	2 27 41.4	.9835857
31	12 51 28.01	S. 3 5 57.8	1.0262997	0 12.5	193 35 34.3	N. 2 27 42.2	0.9835993

OCTOBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	R
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	12 51 28.01	S. 3 5 57.8	1.0262997	0 12.5	193 35 34.3	N. 2 27 42.2	0.9
2	12 51 55.10	3 8 48.9	.0263577	0 9.0	193 37 32.6	2 27 43.0	.9
3	12 52 22.21	3 11 39.8	.0264054	0 5.5	193 39 30.8	2 27 43.7	.9
4	12 52 49.35	3 14 30.6	.0264429	{ ^{0 2.1} _{23 28.6} }	193 41 28.9	2 27 44.5	.9
5	12 53 16.51	3 17 21.3	.0264701	23 55.1	193 43 27.1	2 27 45.3	.9
6	12 53 43.68	3 20 11.7	.0264871	23 51.6	193 45 25.2	2 27 46.0	.9
7	12 54 10.87	3 23 2.0	.0264936	23 48.1	193 47 23.4	2 27 46.8	.9
8	12 54 38.07	3 25 52.0	.0264900	23 44.6	193 49 21.6	2 27 47.5	.9
9	12 55 5.27	3 28 41.7	.0264761	23 41.1	193 51 19.7	2 27 48.3	.9
10	12 55 32.47	3 31 31.1	.0264518	23 37.7	193 53 17.9	2 27 49.0	.9
11	12 55 59.66	3 34 20.1	.0264173	23 34.4	193 55 16.0	2 27 49.8	.9
12	12 56 26.85	3 37 8.7	.0263726	23 30.7	193 57 14.1	2 27 50.5	.9
13	12 56 54.03	3 39 56.9	.0263176	23 27.2	193 59 12.2	2 27 51.2	.9
14	12 57 21.18	3 42 44.8	.0262522	23 23.8	194 1 10.4	2 27 52.0	.9
15	12 57 48.31	3 45 32.2	.0261767	23 20.3	194 3 8.5	2 27 52.7	.9
16	12 58 15.42	3 48 19.1	.0260910	23 16.8	194 5 6.5	2 27 53.4	.9
17	12 58 42.50	3 51 5.5	.0259951	23 13.3	194 7 4.6	2 27 54.1	.9
18	12 59 9.55	3 53 51.4	.0258890	23 9.8	194 9 2.7	2 27 54.9	.9
19	12 59 36.57	3 56 36.8	.0257728	23 6.3	194 11 0.8	2 27 55.6	.9
20	13 0 3.54	3 59 21.7	.0256464	23 2.9	194 12 58.8	2 27 56.3	.9
21	13 0 30.47	4 2 5.9	.0255098	22 59.4	194 14 56.9	2 27 57.0	.9
22	13 0 57.35	4 4 49.6	.0253629	22 55.9	194 16 55.0	2 27 57.7	.9
23	13 1 24.18	4 7 32.5	.0252058	22 52.4	194 18 53.0	2 27 58.4	.9
24	13 1 50.95	4 10 14.8	.0250386	22 48.9	194 20 51.1	2 27 59.1	.9
25	13 2 17.67	4 12 56.4	.0248612	22 45.4	194 22 49.1	2 27 59.8	.9
26	13 2 44.32	4 15 37.3	.0246736	22 41.9	194 24 47.1	2 28 0.5	.9
27	13 3 10.91	4 18 17.5	.0244760	22 38.4	194 26 45.2	2 28 1.2	.9
28	13 3 37.43	4 20 57.0	.0242681	22 34.9	194 28 43.2	2 28 1.9	.9
29	13 4 3.87	4 23 35.6	.0240502	22 31.4	194 30 41.2	2 28 2.6	.9
30	13 4 30.23	4 26 13.4	.0238220	22 27.9	194 32 39.3	2 28 3.3	.9
31	13 4 56.50	4 28 50.4	.0235838	22 24.4	194 34 37.3	2 28 3.9	.9
32	13 5 22.68	S. 4 31 26.5	1.0233355	22 20.9	194 36 35.3	N. 2 28 4.6	0.9

NOVEMBER, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
5 22' 68"	S. 4 31' 26".5	1.0233355	22 20' 9"	194 36' 35".3	N. 2 28' 4".6	0.9840186
5 48' 76"	4 34' 1".7	.0230772	22 17' 4"	194 38' 33".3	2 28' 5".3	.9840320
6 14' 74"	4 36' 35".9	.0228089	22 13' 9"	194 40' 31".3	2 28' 6".0	.9840456
6 40' 61"	4 39' 9".0	.0225308	22 10' 4"	194 42' 29".2	2 28' 6".6	.9840591
7 6' 37"	4 41' 41".2	.0222428	22 6' 9"	194 44' 27".2	2 28' 7".3	.9840725
7 32' 02"	4 44' 12".4	.0219449	22 3' 4"	194 46' 25".2	2 28' 8".0	.9840860
7 57' 55"	4 46' 42".6	.0216372	21 59' 9"	194 48' 23".2	2 28' 8".6	.9840996
8 22' 96"	4 49' 11".7	.0213197	21 56' 4"	194 50' 21".2	2 28' 9".3	.9841130
8 48' 25"	4 51' 39".7	.0209925	21 52' 9"	194 52' 19".2	2 28' 9".9	.9841265
9 13' 41"	4 54' 6".6	.0206557	21 49' 4"	194 54' 17".2	2 28' 10".6	.9841399
9 38' 42"	4 56' 32".4	.0203095	21 45' 9"	194 56' 15".1	2 28' 11".2	.9841534
10 3' 29"	4 58' 56".9	.0199538	21 42' 3"	194 58' 13".1	2 28' 11".9	.9841670
10 28' 02"	5 1' 20".3	.0195886	21 38' 8"	195 0' 11".0	2 28' 12".5	.9841805
10 52' 60"	5 3' 42".5	.0192140	21 35' 3"	195 2' 8".9	2 28' 13".1	.9841939
11 17' 03"	5 6' 3' 5"	.0188299	21 31' 8"	195 4' 6".8	2 28' 13".8	.9842074
11 41' 30"	5 8' 23".1	.0184366	21 28' 2"	195 6' 4".8	2 28' 14".4	.9842208
12 5' 42"	5 10' 41".5	.0180342	21 24' 7"	195 8' 2".7	2 28' 15".0	.9842343
12 29' 38"	5 12' 58".6	.0176226	21 21' 2"	195 10' 0".6	2 28' 15".6	.9842477
12 53' 16"	5 15' 14".3	.0172018	21 17' 6"	195 11' 58".5	2 28' 16".3	.9842612
1 16' 77"	5 17' 28".7	.0167721	21 14' 1"	195 13' 56".3	2 28' 16".9	.9842746
1 40' 20"	5 19' 41".8	.0163334	21 10' 5"	195 15' 54".3	2 28' 17".5	.9842881
1 3' 45"	5 21' 53".4	.0158858	21 7' 0"	195 17' 52".2	2 28' 18".1	.9843015
1 26' 51"	5 24' 3".7	.0154292	21 3' 4"	195 19' 50".0	2 28' 18".8	.9843150
1 49' 38"	5 26' 12".4	.0149639	20 59' 9"	195 21' 47".9	2 28' 19".4	.9843284
5 12' 06"	5 28' 19".7	.0144897	20 56' 3"	195 23' 45".8	2 28' 20".0	.9843419
5 34' 54"	5 30' 25".5	.0140069	20 52' 7"	195 25' 43".6	2 28' 20".6	.9843553
5 56' 81"	5 32' 29".7	.0135154	20 49' 2"	195 27' 41".5	2 28' 21".2	.9843688
6 18' 88"	5 34' 32".4	.0130154	20 45' 6"	195 29' 39".4	2 28' 21".8	.9843821
6 40' 73"	5 36' 33".6	.0125070	20 42' 0"	195 31' 37".2	2 28' 22".4	.9843956
7 2' 36"	5 38' 33".1	.0119903	20 38' 4"	195 33' 35".0	2 28' 23".0	.9844090
7 23' 77"	S. 5 40' 31".0	1.0114653	20 34' 9"	195 35' 32".9	N. 2 28' 23".6	0.9844225

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.		
	Noon.	Noon.	Noon.		Noon.	Noon.		
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	13 17 23.77	S. 5 40 31.0	1.0114653	20 34.9	195 35 32.9	N. 2 28 23.6	0	
2	13 17 44.95	5 42 27.1	.0109322	20 31.3	195 37 30.7	2 28 24.1		
3	13 18 5.89	5 44 21.7	.0103910	20 27.7	195 39 28.6	2 28 24.7		
4	13 18 26.60	5 46 14.6	.0098420	20 24.1	195 41 26.4	2 28 25.3		
5	13 18 47.06	5 48 5.7	.0092850	20 20.5	195 43 24.2	2 28 25.9		
6	13 19 7.28	5 49 55.1	.0087205	20 16.9	195 45 22.0	2 28 26.4		
7	13 19 27.24	5 51 42.7	.0081484	20 13.3	195 47 19.8	2 28 27.0		
8	13 19 46.95	5 53 28.6	.0075690	20 9.6	195 49 17.6	2 28 27.6		
9	13 20 6.41	5 55 12.6	.0069823	20 6.0	195 51 15.4	2 28 28.1		
10	13 20 25.60	5 56 54.9	.0063885	20 2.4	195 53 13.1	2 28 28.7		
11	13 20 44.53	5 58 35.3	.0057876	19 58.8	195 55 10.9	2 28 29.2		
12	13 21 3.19	6 0 13.8	.0051798	19 55.2	195 57 8.6	2 28 29.8		
13	13 21 21.57	6 1 50.5	.0045652	19 51.6	195 59 6.4	2 28 30.3		
14	13 21 39.67	6 3 25.2	.0039439	19 47.9	196 1 4.1	2 28 30.9		
15	13 21 57.49	6 4 58.1	.0033160	19 44.3	196 3 1.9	2 28 31.4		
16	13 22 15.02	6 6 29.1	.0026817	19 40.7	196 4 59.6	2 28 32.0		
17	13 22 32.27	6 7 58.0	.0020410	19 37.0	196 6 57.4	2 28 32.5		
18	13 22 49.23	6 9 25.0	.0013942	19 33.4	196 8 55.0	2 28 33.1		
19	13 23 5.89	6 10 50.0	.0007413	19 29.7	196 10 52.8	2 28 33.6		
20	13 23 22.25	6 12 13.0	1.0000826	19 26.0	196 12 50.5	2 28 34.1		
21	13 23 38.30	6 13 33.9	0.99994179	19 22.4	196 14 48.1	2 28 34.7		
22	13 23 54.04	6 14 52.8	.9987477	19 18.7	196 16 45.9	2 28 35.2		
23	13 24 9.47	6 16 9.7	.9980720	19 15.0	196 18 43.5	2 28 35.7		
24	13 24 24.59	6 17 24.5	.9973909	19 11.3	196 20 41.2	2 28 36.2		
25	13 24 39.38	6 18 37.2	.9967045	19 7.6	196 22 38.9	2 28 36.8		
26	13 24 53.85	6 19 47.8	.9960131	19 3.9	196 24 36.6	2 28 37.3		
27	13 25 7.99	6 20 56.3	.9953169	19 0.2	196 26 34.2	2 28 37.8		
28	13 25 21.80	6 22 2.6	.9946159	18 56.5	196 28 31.9	2 28 38.3		
29	13 25 35.26	6 23 6.7	.9939104	18 52.8	196 30 29.5	2 28 38.8		
30	13 25 48.38	6 24 8.7	.9932007	18 49.1	196 32 27.2	2 28 39.3		
31	13 26 1.16	S. 6 25 8.5	0.9924867	18 45.4	196 34 24.8	N. 2 28 39.8	0	

JANUARY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right ascension.	Declination.	Log. of Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
^{m s} 31 47'34	^{° ' "} S. 15 23 26'8	1'3168019	^{h m} 2 48'7	^{° ' "} 322 6 51'0	^{° ' "} S. 0 43 25'3	1'3008640
31 58'60	15 22 30'9	'3170323	2 45'0	322 7 30'1	0 43 25'5	'3008656
32 9'98	15 21 34'5	'3172378	2 41'2	322 8 9'2	0 43 25'7	'3008672
32 21'47	15 20 37'6	'3174785	2 37'5	322 8 48'2	0 43 25'8	'3008689
32 33'07	15 19 40'1	'3176944	2 33'8	322 9 27'3	0 43 26'0	'3008705
32 44'77	15 18 42'1	'3179053	2 30'1	322 10 6'3	0 43 26'2	'3008721
32 56'58	15 17 43'6	'3181112	2 26'3	322 10 45'3	0 43 26'4	'3008738
33 8'48	15 16 44'6	'3183120	2 22'6	322 11 24'4	0 43 26'5	'3008754
33 20'48	15 15 45'1	'3185077	2 18'8	322 12 3'4	0 43 26'7	'3008770
33 32'57	15 14 45'2	'3186981	2 15'1	322 12 42'5	0 43 26'9	'3008787
33 44'76	15 13 44'8	'3188832	2 11'3	322 13 21'6	0 43 27'1	'3008803
33 57'03	15 12 43'9	'3190631	2 7'6	322 14 0'6	0 43 27'3	'3008820
34 9'39	15 11 42'6	'3192377	2 3'9	322 14 39'6	0 43 27'5	'3008836
34 21'83	15 10 40'9	'3194069	2 0'2	322 15 18'7	0 43 27'7	'3008853
34 34'35	15 9 38'8	'3195707	1 56'5	322 15 57'7	0 43 27'9	'3008869
34 46'94	15 8 36'3	'3197291	1 52'7	322 16 36'7	0 43 28'1	'3008885
34 59'61	15 7 33'4	'3198821	1 49'0	322 17 15'7	0 43 28'3	'3008901
35 12'35	15 6 30'2	'3200296	1 45'3	322 17 54'8	0 43 28'4	'3008917
35 25'15	15 5 26'6	'3201715	1 41'5	322 18 33'8	0 43 28'6	'3008933
35 38'02	15 4 22'6	'3203079	1 37'8	322 19 12'8	0 43 28'8	'3008950
35 50'95	15 3 18'3	'3204387	1 34'1	322 19 51'8	0 43 29'0	'3008966
36 3'94	15 2 13'7	'3205639	1 30'4	322 20 31'0	0 43 29'1	'3008982
36 16'98	15 1 8'8	'3206835	1 26'7	322 21 10'0	0 43 29'3	'3008998
36 30'07	15 0 3'6	'3207975	1 23'0	322 21 49'0	0 43 29'5	'3009015
36 43'22	14 58 58'2	'3209058	1 19'3	322 22 28'0	0 43 29'7	'3009031
36 56'42	14 57 52'6	'3210084	1 15'6	322 23 7'0	0 43 29'9	'3009047
37 9'66	14 56 46'7	'3211054	1 11'8	322 23 46'0	0 43 30'0	'3009063
37 22'94	14 55 40'5	'3211966	1 8'1	322 24 25'0	0 43 30'2	'3009080
37 36'26	14 54 34'1	'3212821	1 4'4	322 25 4'0	0 43 30'4	'3009096
37 49'62	14 53 27'6	'3213618	1 0'7	322 25 43'2	0 43 30'6	'3009112
38 3'01	14 52 20'9	'3214358	0 57'0	322 26 22'2	0 43 30'8	'3009128
38 16'43	S. 14 51 14'0	1'3215040	0 53'3	322 27 1'2	S. 0 43 31'0	1'3009145

FEBRUARY, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Lo Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	N
1	^{h m s} 21 38 16.43	^{° ′ ″} S. 14 51 14.0	1.3215040	^{h m} 0 53.3	^{° ′ ″} 322 27 1.2	^{° ′ ″} S. 0 43 31.0	1.300
2	21 38 29.88	14 50 6.9	.3215663	0 49.6	322 27 40.2	0 43 31.2	.300
3	21 38 43.36	14 48 59.6	.3216229	0 45.9	322 28 19.2	0 43 31.4	.300
4	21 38 56.87	14 47 52.2	.3216736	0 42.1	322 28 58.2	0 43 31.6	.300
5	21 39 10.39	14 46 44.7	.3217185	0 38.4	322 29 37.2	0 43 31.8	.300
6	21 39 23.93	14 45 37.1	.3217576	0 34.7	322 30 16.1	0 43 32.0	.300
7	21 39 37.48	14 44 29.4	.3217908	0 31.0	322 30 55.1	0 43 32.1	.300
8	21 39 51.04	14 43 21.6	.3218181	0 27.3	322 31 34.1	0 43 32.3	.300
9	21 40 4.61	14 42 13.8	.3218395	0 23.6	322 32 13.1	0 43 32.5	.300
10	21 40 18.19	14 41 5.9	.3218551	0 19.9	322 32 52.1	0 43 32.7	.300
11	21 40 31.77	14 39 58.0	.3218647	0 16.2	322 33 31.1	0 43 32.9	.300
12	21 40 45.35	14 38 50.1	.3218684	0 12.5	322 34 10.1	0 43 33.1	.300
13	21 40 58.92	14 37 42.1	.3218663	0 8.8	322 34 49.1	0 43 33.3	.300
14	21 41 12.49	14 36 34.2	.3218583	0 5.1	322 35 28.1	0 43 33.5	.300
15	21 41 26.05	14 35 26.3	.3218445	{ ^{0 0} 27.7}	322 36 7.0	0 43 33.7	.300
16	21 41 39.59	14 34 18.5	.3218248	23 54.0	322 36 46.0	0 43 33.9	.300
17	21 41 53.12	14 33 10.7	.3217993	23 50.3	322 37 25.0	0 43 34.1	.300
18	21 42 6.62	14 32 3.0	.3217681	23 46.6	322 38 4.0	0 43 34.3	.300
19	21 42 20.10	14 30 55.4	.3217311	23 42.9	322 38 43.0	0 43 34.5	.300
20	21 42 33.56	14 29 47.9	.3216883	23 39.2	322 39 22.0	0 43 34.6	.300
21	21 42 46.99	14 28 40.5	.3216398	23 35.5	322 40 0.9	0 43 34.8	.300
22	21 43 0.39	14 27 33.1	.3215855	23 31.8	322 40 39.9	0 43 35.0	.300
23	21 43 13.76	14 26 25.9	.3215255	23 28.0	322 41 18.9	0 43 35.2	.300
24	21 43 27.10	14 25 18.9	.3214598	23 24.3	322 41 57.8	0 43 35.3	.300
25	21 43 40.40	14 24 12.1	.3213884	23 20.6	322 42 36.8	0 43 35.5	.300
26	21 43 53.66	14 23 5.4	.3213113	23 16.9	322 43 15.8	0 43 35.7	.300
27	21 44 6.88	14 21 58.9	.3212286	23 13.2	322 43 54.7	0 43 35.9	.300
28	21 44 20.05	14 20 52.6	.3211402	23 9.5	322 44 33.7	0 43 36.1	.300
29	21 44 33.18	S. 14 19 46.6	1.3210462	23 5.8	322 45 12.7	S. 0 43 36.2	1.300

MARCH, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
^{m s} 14 33.18	^{° ′ ″} S. 14 19 46.6	1.3210462	^{h m} 23 5.8	^{° ′ ″} 322 45 12.7	^{° ′ ″} S. 0 43 36.2	1.3009596
14 46.25	14 18 40.8	.3209467	23 2.0	322 45 51.6	0 43 36.4	.3009611
14 59.27	14 17 35.3	.3208415	22 58.4	322 46 30.6	0 43 36.6	.3009627
15 12.23	14 16 30.0	.3207308	22 54.6	322 47 9.6	0 43 36.8	.3009643
15 25.14	14 15 25.0	.3206146	22 50.9	322 47 48.5	0 43 37.0	.3009659
15 37.98	14 14 20.3	.3204929	22 47.1	322 48 27.5	0 43 37.2	.3009675
15 50.76	14 13 15.9	.3203657	22 43.4	322 49 6.4	0 43 37.4	.3009691
16 3.48	14 12 11.9	.3202330	22 39.7	322 49 45.4	0 43 37.5	.3009707
16 16.13	14 11 8.2	.3200949	22 36.0	322 50 24.4	0 43 37.7	.3009723
16 28.70	14 10 4.8	.3199514	22 32.3	322 51 3.3	0 43 37.9	.3009739
16 41.20	14 9 1.8	.3198026	22 28.5	322 51 42.2	0 43 38.1	.3009754
16 53.62	14 7 59.2	.3196485	22 24.8	322 52 21.2	0 43 38.2	.3009770
17 5.96	14 6 57.0	.3194892	22 21.1	322 53 0.1	0 43 38.4	.3009786
17 18.21	14 5 55.2	.3193247	22 17.4	322 53 39.1	0 43 38.6	.3009802
17 30.37	14 4 53.8	.3191550	22 13.6	322 54 18.0	0 43 38.8	.3009818
17 42.45	14 3 52.9	.3189803	22 9.9	322 54 57.0	0 43 39.0	.3009834
17 54.44	14 2 52.5	.3188004	22 6.2	322 55 35.9	0 43 39.2	.3009850
18 6.35	14 1 52.6	.3186156	22 2.5	322 56 14.9	0 43 39.3	.3009866
18 18.16	14 0 53.1	.3184258	21 58.7	322 56 53.8	0 43 39.5	.3009882
18 29.87	13 59 54.1	.3182311	21 55.0	322 57 32.8	0 43 39.7	.3009897
18 41.47	13 58 55.6	.3180315	21 51.2	322 58 11.8	0 43 39.9	.3009913
18 52.97	13 57 57.6	.3178271	21 47.5	322 58 50.7	0 43 40.1	.3009929
19 4.37	13 57 0.1	.3176180	21 43.7	322 59 29.7	0 43 40.3	.3009945
19 15.66	13 56 3.1	.3174042	21 40.0	323 0 8.6	0 43 40.5	.3009961
19 26.84	13 55 6.6	.3171858	21 36.2	323 0 47.5	0 43 40.7	.3009977
19 37.92	13 54 10.7	.3169627	21 32.5	323 1 26.4	0 43 40.8	.3009993
19 48.88	13 53 15.4	.3167351	21 28.7	323 2 5.4	0 43 41.0	.3010009
19 59.73	13 52 20.7	.3165030	21 25.0	323 2 44.4	0 43 41.2	.3010024
50 10.46	13 51 26.6	.3162664	21 21.2	323 3 23.3	0 43 41.4	.3010040
50 21.08	13 50 33.0	.3160255	21 17.5	323 4 2.3	0 43 41.6	.3010056
50 31.58	13 49 40.1	.3157801	21 13.7	323 4 41.2	0 43 41.7	.3010072
50 41.95	S. 13 48 47.9	1.3155305	21 10.0	323 5 20.1	S. 0 43 41.9	1.3010088

APRIL, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	L Ra
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]	
1	21 50 41.95	S. 13 48 47.9	1.3155305	21 10.0	323 5 20.1	S. 0 43 41.9	1.30
2	21 50 52.19	13 47 56.3	3152766	21 6.2	323 5 59.1	0 43 42.1	30
3	21 51 2.31	13 47 5.4	3150186	21 2.5	323 6 38.0	0 43 42.3	30
4	21 51 12.30	13 46 15.2	3147565	20 58.7	323 7 17.0	0 43 42.5	30
5	21 51 22.15	13 45 25.7	3144903	20 54.9	323 7 56.0	0 43 42.6	30
6	21 51 31.87	13 44 36.9	3142202	20 51.1	323 8 34.9	0 43 42.8	30
7	21 51 41.46	13 43 48.7	3139461	20 47.4	323 9 13.9	0 43 43.0	30
8	21 51 50.91	13 43 1.3	3136682	20 43.6	323 9 52.9	0 43 43.2	30
9	21 52 0.21	13 42 14.6	3133865	20 39.8	323 10 31.8	0 43 43.4	30
10	21 52 9.38	13 41 28.6	3131011	20 36.0	323 11 10.8	0 43 43.5	30
11	21 52 18.40	13 40 43.4	3128121	20 32.3	323 11 49.6	0 43 43.7	30
12	21 52 27.27	13 39 59.0	3125195	20 28.5	323 12 28.6	0 43 43.9	30
13	21 52 35.99	13 39 15.4	3122235	20 24.7	323 13 7.6	0 43 44.1	30
14	21 52 44.57	13 38 32.5	3119241	20 20.9	323 13 46.6	0 43 44.2	30
15	21 52 52.99	13 37 50.4	3116215	20 17.1	323 14 25.4	0 43 44.4	30
16	21 53 1.26	13 37 9.1	3113157	20 13.3	323 15 4.4	0 43 44.6	30
17	21 53 9.38	13 36 28.6	3110067	20 9.5	323 15 43.4	0 43 44.8	30
18	21 53 17.34	13 35 49.0	3106947	20 5.7	323 16 22.4	0 43 45.0	30
19	21 53 25.14	13 35 10.2	3103797	20 1.9	323 17 1.2	0 43 45.1	30
20	21 53 32.78	13 34 32.2	3100618	19 58.1	323 17 40.2	0 43 45.3	30
21	21 53 40.26	13 33 55.1	3097411	19 54.3	323 18 19.2	0 43 45.5	30
22	21 53 47.58	13 33 18.8	3094177	19 50.5	323 18 58.1	0 43 45.7	30
23	21 53 54.74	13 32 43.4	3090916	19 46.7	323 19 37.1	0 43 45.9	30
24	21 54 1.73	13 32 8.9	3087629	19 42.8	323 20 16.1	0 43 46.1	30
25	21 54 8.56	13 31 35.2	3084318	19 39.0	323 20 55.0	0 43 46.3	30
26	21 54 15.22	13 31 2.4	3080982	19 35.2	323 21 33.9	0 43 46.5	30
27	21 54 21.72	13 30 30.5	3077624	19 31.4	323 22 12.9	0 43 46.6	30
28	21 54 28.04	13 29 59.5	3074242	19 27.5	323 22 51.9	0 43 46.8	30
29	21 54 34.20	13 29 29.4	3070839	19 23.7	323 23 30.8	0 43 47.0	30
30	21 54 40.18	13 29 0.2	3067415	19 19.9	323 24 9.8	0 43 47.2	30
31	21 54 45.99	S. 13 28 32.0	1.3063971	19 16.1	323 24 48.8	S. 0 43 47.3	1.30

MAY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
^m ^s 54 45'99	[°] ['] ["] S. 13 28 32'0	[°] 1'3063971	^h ^m 19 16'1	[°] ['] ["] 323 24 48'8	[°] ['] ["] S. 0 43 47'3	[°] 1'3010558
54 51'63	13 28 4'7	'3060506	19 12'2	323 25 27'7	0 43 47'5	'3010573
54 57'09	13 27 38'3	'3057024	19 8'4	323 26 6'7	0 43 47'7	'3010589
55 2'37	13 27 12'9	'3053524	19 4'5	323 26 45'7	0 43 47'9	'3010604
55 7'47	13 26 48'4	'3050008	19 0'7	323 27 24'6	0 43 48'0	'3010620
55 12'39	13 26 24'9	'3046476	18 56'8	323 28 3'6	0 43 48'2	'3010635
55 17'13	13 26 2'3	'3042930	18 53'0	323 28 42'6	0 43 48'4	'3010651
55 21'69	13 25 40'7	'3039370	18 49'1	323 29 21'5	0 43 48'6	'3010666
55 26'06	13 25 20'1	'3035798	18 45'2	323 30 0'5	0 43 48'7	'3010682
55 30'25	13 25 0'4	'3032215	18 41'4	323 30 39'5	0 43 48'9	'3010697
55 34'26	13 24 41'7	'3028621	18 37'5	323 31 18'4	0 43 49'1	'3010713
55 38'08	13 24 24'0	'3025018	18 33'6	323 31 57'4	0 43 49'3	'3010728
55 41'72	13 24 7'3	'3021407	18 29'7	323 32 36'4	0 43 49'4	'3010744
55 45'17	13 23 51'6	'3017788	18 25'9	323 33 15'3	0 43 49'6	'3010759
55 48'44	13 23 36'8	'3014163	18 22'0	323 33 54'4	0 43 49'8	'3010775
55 51'52	13 23 23'0	'3010533	18 18'1	323 34 33'4	0 43 50'0	'3010790
55 54'42	13 23 10'2	'3006899	18 14'2	323 35 12'3	0 43 50'1	'3010806
55 57'12	13 22 58'4	'3003262	18 10'3	323 35 51'3	0 43 50'3	'3010821
55 59'64	13 22 47'6	'2999622	18 6'4	323 36 30'3	0 43 50'5	'3010837
56 1'97	13 22 37'8	'2995982	18 2'5	323 37 9'2	0 43 50'6	'3010852
56 4'11	13 22 29'0	'2992341	17 58'6	323 37 48'2	0 43 50'8	'3010867
56 6'07	13 22 21'2	'2988701	17 54'7	323 38 27'2	0 43 51'0	'3010883
56 7'84	13 22 14'4	'2985062	17 50'8	323 39 6'2	0 43 51'2	'3010898
56 9'42	13 22 8'6	'2981426	17 46'9	323 39 45'2	0 43 51'3	'3010914
56 10'81	13 22 3'7	'2977794	17 42'9	323 40 24'2	0 43 51'5	'3010929
56 12'01	13 21 59'8	'2974166	17 39'0	323 41 3'2	0 43 51'7	'3010945
56 13'02	13 21 57'0	'2970544	17 35'1	323 41 42'1	0 43 51'9	'3010960
56 13'85	13 21 55'2	'2966929	17 31'2	323 42 21'1	0 43 52'0	'3010975
56 14'48	13 21 54'4	'2963321	17 27'2	323 43 0'1	0 43 52'2	'3010991
56 14'92	13 21 54'6	'2959722	17 23'3	323 43 39'1	0 43 52'4	'3011006
56 15'18	13 21 55'8	'2956132	17 19'4	323 44 18'0	0 43 52'6	'3011022
56 15'25	S. 13 21 57'9	1'2952553	17 15'5	323 44 57'1	S. 0 43 52'7	1'3011037

JUNE, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No.
1	^h 21 ^m 56 ^s 15.25	S. ^o 13 ⁱ 21 ["] 57.9	1.2952553	^h 17 ^m 15.5	^o 323 ⁱ 44 ["] 57.1	S. ^o 0 ⁱ 43 ["] 52.7	1.301
2	21 56 15.13	13 22 1.0	.2948986	17 11.5	323 45 36.0	0 43 52.9	.301
3	21 56 14.82	13 22 5.1	.2945431	17 7.6	323 46 15.0	0 43 53.1	.301
4	21 56 14.33	13 22 10.2	.2941891	17 3.6	323 46 54.0	0 43 53.3	.301
5	21 56 13.65	13 22 16.3	.2938365	16 59.7	323 47 33.0	0 43 53.4	.301
6	21 56 12.78	13 22 23.5	.2934856	16 55.7	323 48 12.0	0 43 53.6	.301
7	21 56 11.72	13 22 31.7	.2931363	16 51.8	323 48 51.0	0 43 53.8	.301
8	21 56 10.48	13 22 40.8	.2927889	16 47.8	323 49 30.0	0 43 54.0	.301
9	21 56 9.06	13 22 50.8	.2924434	16 43.9	323 50 9.0	0 43 54.1	.301
10	21 56 7.45	13 23 1.7	.2921000	16 39.9	323 50 48.0	0 43 54.3	.301
11	21 56 5.65	13 23 13.6	.2917589	16 36.0	323 51 26.9	0 43 54.5	.301
12	21 56 3.67	13 23 26.5	.2914201	16 32.0	323 52 6.0	0 43 54.7	.301
13	21 56 1.51	13 23 40.4	.2910838	16 28.0	323 52 44.9	0 43 54.8	.301
14	21 55 59.18	13 23 55.3	.2907499	16 24.0	323 53 24.0	0 43 55.0	.301
15	21 55 56.66	13 24 11.1	.2904186	16 20.1	323 54 2.9	0 43 55.2	.301
16	21 55 53.97	13 24 27.8	.2900900	16 16.1	323 54 41.9	0 43 55.3	.301
17	21 55 51.10	13 24 45.4	.2897642	16 12.1	323 55 20.9	0 43 55.5	.301
18	21 55 48.06	13 25 3.8	.2894413	16 8.1	323 55 59.9	0 43 55.7	.301
19	21 55 44.84	13 25 23.1	.2891214	16 4.1	323 56 39.0	0 43 55.9	.301
20	21 55 41.44	13 25 43.3	.2888047	16 0.2	323 57 17.9	0 43 56.0	.301
21	21 55 37.87	13 26 4.5	.2884911	15 56.2	323 57 56.9	0 43 56.2	.301
22	21 55 34.14	13 26 26.6	.2881808	15 52.2	323 58 36.0	0 43 56.4	.301
23	21 55 30.24	13 26 49.5	.2878736	15 48.2	323 59 14.9	0 43 56.6	.301
24	21 55 26.17	13 27 13.2	.2875699	15 44.2	323 59 54.0	0 43 56.7	.301
25	21 55 21.94	13 27 37.8	.2872698	15 40.2	324 0 32.9	0 43 56.9	.301
26	21 55 17.55	13 28 3.2	.2869735	15 36.2	324 1 12.0	0 43 57.1	.301
27	21 55 12.99	13 28 29.4	.2866812	15 32.2	324 1 50.9	0 43 57.3	.301
28	21 55 8.27	13 28 56.5	.2863928	15 28.1	324 2 29.9	0 43 57.5	.301
29	21 55 3.39	13 29 24.4	.2861084	15 24.1	324 3 8.9	0 43 57.6	.301
30	21 54 58.36	13 29 53.1	.2858281	15 20.1	324 3 47.9	0 43 57.8	.301
31	21 54 53.17	S. 13 30 22.5	1.2855518	15 16.1	324 4 26.9	S. 0 43 58.0	1.301

JULY, 1834.

MEAN TIME.

Geocentric.				Heliocentric.		
Right ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
^{m s} 54 53.17	^{° ′ ″} S. 13 30 22.5	1.2855518	^{h m} 15 16.1	^{° ′ ″} 324 4 26.9	^{° ′ ″} S. 0 43 58.0	1.3011495
54 47.83	13 30 52.7	.2852797	15 12.0	324 5 5.9	0 43 58.1	.3011510
54 42.34	13 31 23.7	.2850117	15 8.0	324 5 44.9	0 43 58.3	.3011525
54 36.70	13 31 55.5	.2847481	15 4.0	324 6 23.9	0 43 58.5	.3011540
54 30.90	13 32 28.0	.2844892	14 59.9	324 7 2.8	0 43 58.7	.3011555
54 24.96	13 33 1.2	.2842350	14 55.9	324 7 41.9	0 43 58.8	.3011570
54 18.88	13 33 35.1	.2839855	14 51.9	324 8 20.8	0 43 59.0	.3011585
54 12.66	13 34 9.7	.2837408	14 47.9	324 8 59.9	0 43 59.2	.3011601
54 6.31	13 34 44.9	.2835009	14 43.8	324 9 38.8	0 43 59.3	.3011616
53 59.83	13 35 20.8	.2832659	14 39.8	324 10 17.8	0 43 59.5	.3011631
53 53.22	13 35 57.4	.2830361	14 35.7	324 10 56.8	0 43 59.7	.3011646
53 46.47	13 36 34.6	.2828114	14 31.7	324 11 35.8	0 43 59.8	.3011661
53 39.59	13 37 12.4	.2825921	14 27.6	324 12 14.7	0 44 0.0	.3011676
53 32.59	13 37 50.8	.2823782	14 23.6	324 12 53.8	0 44 0.2	.3011691
53 25.47	13 38 29.9	.2821697	14 19.5	324 13 32.7	0 44 0.3	.3011706
53 18.24	13 39 9.6	.2819666	14 15.5	324 14 11.7	0 44 0.5	.3011721
53 10.90	13 39 49.8	.2817691	14 11.4	324 14 50.6	0 44 0.7	.3011736
53 3.44	13 40 30.5	.2815771	14 7.3	324 15 29.7	0 44 0.8	.3011751
52 55.87	13 41 11.6	.2813907	14 3.3	324 16 8.6	0 44 1.0	.3011766
52 48.20	13 41 53.2	.2812100	13 59.3	324 16 47.6	0 44 1.2	.3011781
52 40.42	13 42 35.3	.2810350	13 55.2	324 17 26.6	0 44 1.3	.3011796
52 32.54	13 43 17.9	.2808658	13 51.1	324 18 5.6	0 44 1.5	.3011811
52 24.57	13 44 1.0	.2807024	13 47.0	324 18 44.5	0 44 1.7	.3011826
52 16.50	13 44 44.5	.2805450	13 43.0	324 19 23.5	0 44 1.8	.3011841
52 8.33	13 45 28.4	.2803936	13 38.9	324 20 2.4	0 44 2.0	.3011856
52 0.08	13 46 12.7	.2802483	13 34.8	324 20 41.5	0 44 2.2	.3011871
51 51.75	13 46 57.4	.2801091	13 30.7	324 21 20.4	0 44 2.3	.3011886
51 43.33	13 47 42.4	.2799762	13 26.7	324 21 59.3	0 44 2.5	.3011901
51 34.84	13 48 27.8	.2798495	13 22.6	324 22 38.3	0 44 2.7	.3011916
51 26.27	13 49 13.5	.2797291	13 18.5	324 23 17.2	0 44 2.9	.3011931
51 17.63	13 49 59.5	.2796150	13 14.4	324 23 56.2	0 44 3.0	.3011946
51 8.92	S. 13 50 45.8	1.2795074	13 10.4	324 24 35.2	S. 0 44 3.2	1.3011960

AUGUST, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	No.	
	^h ^m ^s	^o ⁱ ^{''}		^h ^m	^o ⁱ ^{''}	^o ⁱ ^{''}		
1	21 51 8.92	S. 13 50 45.8	1.2795074	13 10.4	324 24 35.2	S. 0 44 3.2	1.30	
2	21 51 0.14	13 51 32.4	.2794062	13 6.3	324 25 14.2	0 44 3.4	.30	
3	21 50 51.30	13 52 19.3	.2793116	13 2.2	324 25 53.1	0 44 3.5	.30	
4	21 50 42.41	13 53 6.4	.2792235	12 58.1	324 26 32.1	0 44 3.7	.30	
5	21 50 33.46	13 53 53.7	.2791419	12 54.1	324 27 11.0	0 44 3.9	.30	
6	21 50 24.46	13 54 41.2	.2790669	12 50.0	324 27 49.9	0 44 4.0	.30	
7	21 50 15.42	13 55 28.9	.2789986	12 45.9	324 28 28.9	0 44 4.2	.30	
8	21 50 6.34	13 56 16.7	.2789369	12 41.8	324 29 7.8	0 44 4.4	.30	
9	21 49 57.22	13 57 4.6	.2788819	12 37.7	324 29 46.8	0 44 4.5	.30	
10	21 49 48.07	13 57 52.7	.2788335	12 33.6	324 30 25.7	0 44 4.7	.30	
11	21 49 38.88	13 58 40.8	.2787919	12 29.5	324 31 4.6	0 44 4.9	.30	
12	21 49 29.67	13 59 29.0	.2787570	12 25.4	324 31 43.5	0 44 5.0	.30	
13	21 49 20.44	14 0 17.2	.2787289	12 21.3	324 32 22.4	0 44 5.2	.30	
14	21 49 11.19	14 1 5.4	.2787076	12 17.2	324 33 1.3	0 44 5.4	.30	
15	21 49 1.92	14 1 53.7	.2786931	12 13.1	324 33 40.2	0 44 5.6	.30	
16	21 48 52.64	14 2 42.0	.2786853	12 9.0	324 34 19.1	0 44 5.7	.30	
17	21 48 43.35	14 3 30.2	.2786843	12 4.9	324 34 58.1	0 44 5.9	.30	
18	21 48 34.06	14 4 18.4	.2786901	12 0.8	324 35 36.9	0 44 6.1	.30	
19	21 48 24.76	14 5 6.5	.2787026	11 56.7	324 36 15.8	0 44 6.2	.30	
20	21 48 15.47	14 5 54.5	.2787219	11 52.6	324 36 54.8	0 44 6.4	.30	
21	21 48 6.18	14 6 42.4	.2787480	11 48.6	324 37 33.7	0 44 6.6	.30	
22	21 47 56.91	14 7 30.2	.2787809	11 44.5	324 38 12.6	0 44 6.7	.30	
23	21 47 47.66	14 8 17.8	.2788205	11 40.5	324 38 51.4	0 44 6.9	.30	
24	21 47 38.42	14 9 5.2	.2788669	11 36.5	324 39 30.4	0 44 7.1	.30	
25	21 47 29.21	14 9 52.5	.2789200	11 32.4	324 40 9.3	0 44 7.2	.30	
26	21 47 20.02	14 10 39.6	.2789799	11 28.3	324 40 48.2	0 44 7.4	.30	
27	21 47 10.86	14 11 26.4	.2790465	11 24.3	324 41 27.1	0 44 7.6	.30	
28	21 47 1.73	14 12 13.0	.2791198	11 20.2	324 42 6.0	0 44 7.7	.30	
29	21 46 52.64	14 12 59.3	.2791998	11 16.1	324 42 44.9	0 44 7.9	.30	
30	21 46 43.59	14 13 45.3	.2792865	11 12.1	324 43 23.8	0 44 8.1	.30	
31	21 46 34.58	14 14 31.0	.2793799	11 8.0	324 44 2.6	0 44 8.2	.30	
32	21 46 25.62	S. 14 15 16.6	1.2794801	11 3.9	324 44 41.5	S. 0 44 8.4	1.30	

SEPTEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.		
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.
1	^h 21 ^m 46 ^s 25.62	S. 14 15 16.6	1.2794801	^h 11 ^m 3.9	^o 324 ⁱ 44 ^{''} 41.5	S. 0 44 8.4	1.3012419
2	21 46 16.72	14 16 1.8	.2795868	10 59.8	324 45 20.5	0 44 8.5	.3012434
3	21 46 7.87	14 16 46.7	.2797001	10 55.8	324 45 59.4	0 44 8.7	.3012449
4	21 45 59.08	14 17 31.1	.2798199	10 51.7	324 46 38.2	0 44 8.9	.3012463
5	21 45 50.36	14 18 15.2	.2799461	10 47.6	324 47 17.1	0 44 9.0	.3012478
6	21 45 41.70	14 18 58.7	.2800788	10 43.5	324 47 56.0	0 44 9.2	.3012493
7	21 45 33.12	14 19 41.7	.2802179	10 39.5	324 48 34.9	0 44 9.4	.3012508
8	21 45 24.61	14 20 24.3	.2803633	10 35.4	324 49 13.8	0 44 9.5	.3012522
9	21 45 16.18	14 21 6.5	.2805150	10 31.3	324 49 52.7	0 44 9.7	.3012537
10	21 45 7.84	14 21 48.2	.2806729	10 27.2	324 50 31.5	0 44 9.9	.3012551
11	21 44 59.58	14 22 29.4	.2808370	10 23.2	324 51 10.4	0 44 10.0	.3012566
12	21 44 51.42	14 23 10.0	.2810073	10 19.1	324 51 49.4	0 44 10.2	.3012581
13	21 44 43.35	14 23 50.1	.2811836	10 15.1	324 52 28.2	0 44 10.4	.3012595
14	21 44 35.37	14 24 29.7	.2813658	10 11.0	324 53 7.1	0 44 10.6	.3012610
15	21 44 27.50	14 25 8.7	.2815540	10 7.0	324 53 46.0	0 44 10.7	.3012625
16	21 44 19.73	14 25 47.1	.2817480	10 2.9	324 54 24.8	0 44 10.9	.3012639
17	21 44 12.07	14 26 24.9	.2819478	9 58.9	324 55 3.7	0 44 11.0	.3012654
18	21 44 4.51	14 27 2.2	.2821533	9 54.8	324 55 42.5	0 44 11.2	.3012668
19	21 43 57.07	14 27 38.8	.2823645	9 50.8	324 56 21.5	0 44 11.4	.3012683
20	21 43 49.74	14 28 14.7	.2825813	9 46.7	324 57 0.4	0 44 11.5	.3012697
21	21 43 42.53	14 28 50.0	.2828036	9 42.7	324 57 39.2	0 44 11.7	.3012712
22	21 43 35.44	14 29 24.6	.2830314	9 38.6	324 58 18.1	0 44 11.8	.3012726
23	21 43 28.48	14 29 58.5	.2832646	9 34.6	324 58 56.9	0 44 12.0	.3012741
24	21 43 21.64	14 30 31.7	.2835031	9 30.5	324 59 35.8	0 44 12.2	.3012755
25	21 43 14.93	14 31 4.2	.2837468	9 26.4	325 0 14.8	0 44 12.3	.3012770
26	21 43 8.36	14 31 36.0	.2839957	9 22.3	325 0 53.6	0 44 12.5	.3012784
27	21 43 1.92	14 32 7.1	.2842497	9 18.3	325 1 32.5	0 44 12.6	.3012799
28	21 42 55.63	14 32 37.4	.2845087	9 14.2	325 2 11.3	0 44 12.8	.3012813
29	21 42 49.48	14 33 6.9	.2847726	9 10.2	325 2 50.2	0 44 13.0	.3012828
30	21 42 43.48	14 33 35.6	.2850414	9 6.2	325 3 29.1	0 44 13.2	.3012842
31	21 42 37.63	S. 14 34 3.5	1.2853149	9 2.1	325 4 7.9	S. 0 44 13.4	1.3012856

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.			
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude.	Latitude.	Log Rad.	
	Noon.	Noon.	Noon.	Passage.	Noon.	Noon.	Noon.	
	^h ^m ^s	[°] ['] ["]		^h ^m	[°] ['] ["]	[°] ['] ["]		
1	21 42 24.62	S. 14 33 0.1	1.3067000	5 2.2	325 43 40.8	S. 0 44 23.1	1.301	
2	21 42 30.40	14 32 28.7	.3070556	4 58.3	325 44 19.7	0 44 23.3	.301	
3	21 42 36.37	14 31 56.4	.3074091	4 54.5	325 44 58.7	0 44 23.5	.301	
4	21 42 42.52	14 31 23.2	.3077603	4 50.7	325 45 37.6	0 44 23.6	.301	
5	21 42 48.86	14 30 49.1	.3081091	4 46.9	325 46 16.5	0 44 23.8	.301	
6	21 42 55.37	14 30 14.1	.3084555	4 43.0	325 46 55.4	0 44 23.9	.301	
7	21 43 2.06	14 29 38.2	.3087994	4 39.2	325 47 34.3	0 44 24.1	.301	
8	21 43 8.92	14 29 1.4	.3091407	4 35.4	325 48 13.3	0 44 24.2	.301	
9	21 43 15.96	14 28 23.8	.3094793	4 31.6	325 48 52.2	0 44 24.4	.301	
10	21 43 23.17	14 27 45.3	.3098151	4 27.7	325 49 31.1	0 44 24.6	.301	
11	21 43 30.54	14 27 5.9	.3101480	4 23.9	325 50 10.0	0 44 24.7	.301	
12	21 43 38.09	14 26 25.7	.3104779	4 20.1	325 50 48.9	0 44 24.9	.301	
13	21 43 45.80	14 25 44.7	.3108047	4 16.3	325 51 27.9	0 44 25.0	.301	
14	21 43 53.68	14 25 2.8	.3111284	4 12.5	325 52 6.8	0 44 25.2	.301	
15	21 44 1.72	14 24 20.1	.3114489	4 8.7	325 52 45.8	0 44 25.3	.301	
16	21 44 9.92	14 23 36.6	.3117662	4 4.9	325 53 24.7	0 44 25.5	.301	
17	21 44 18.28	14 22 52.3	.3120801	4 1.1	325 54 3.7	0 44 25.7	.301	
18	21 44 26.79	14 22 7.2	.3123906	3 57.3	325 54 42.6	0 44 25.8	.301	
19	21 44 35.46	14 21 21.3	.3126975	3 53.5	325 55 21.6	0 44 26.0	.301	
20	21 44 44.28	14 20 34.6	.3130008	3 49.7	325 56 0.5	0 44 26.1	.301	
21	21 44 53.26	14 19 47.1	.3133004	3 46.0	325 56 39.4	0 44 26.3	.301	
22	21 45 2.38	14 18 58.9	.3135962	3 42.2	325 57 18.3	0 44 26.4	.301	
23	21 45 11.65	14 18 9.9	.3138882	3 38.4	325 57 57.2	0 44 26.6	.301	
24	21 45 21.06	14 17 20.2	.3141763	3 34.6	325 58 36.2	0 44 26.8	.301	
25	21 45 30.62	14 16 29.7	.3144605	3 30.9	325 59 15.0	0 44 26.9	.301	
26	21 45 40.32	14 15 38.5	.3147406	3 27.1	325 59 54.0	0 44 27.1	.301	
27	21 45 50.16	14 14 46.6	.3150166	3 23.3	326 0 32.9	0 44 27.2	.301	
28	21 46 0.14	14 13 54.0	.3152884	3 19.6	326 1 11.9	0 44 27.4	.301	
29	21 46 10.25	14 13 0.8	.3155559	3 15.8	326 1 50.8	0 44 27.5	.301	
30	21 46 20.50	14 12 6.9	.3158191	3 12.1	326 2 29.8	0 44 27.7	.301	
31	21 46 30.87	S. 14 11 12.3	1.3160779	3 8.3	326 3 8.7	S. 0 44 27.9	1.301	

1834.		MERCURY.		VENUS.		1834.		MERCURY.		VENUS.	
Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.	Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.
Jan. 1		7° 90	2° 97	5° 30	5° 09	July 5		9° 72	3° 66	6° 24	6° 01
6		7° 32	2° 76	5° 25	5° 05	10		10° 64	4° 01	6° 38	6° 14
11		6° 90	2° 60	5° 21	5° 01	15		11° 67	4° 39	6° 53	6° 28
16		6° 60	2° 49	5° 17	4° 98	20		12° 75	4° 80	6° 69	6° 44
21		6° 38	2° 40	5° 14	4° 95	25		13° 72	5° 17	6° 87	6° 61
26		6° 23	2° 35	5° 11	4° 92	30		14° 34	5° 40	7° 06	6° 79
31		6° 14	2° 31	5° 08	4° 89	Aug. 4		14° 30	5° 39	7° 27	6° 99
Febr. 5		6° 11	2° 30	5° 06	4° 87	9		13° 45	5° 06	7° 49	7° 20
10		6° 14	2° 31	5° 04	4° 85	14		12° 01	4° 52	7° 73	7° 43
15		6° 25	2° 35	5° 02	4° 83	19		10° 41	3° 92	7° 99	7° 68
20		6° 46	2° 43	5° 01	4° 82	24		8° 98	3° 38	8° 27	7° 95
25		6° 83	2° 57	5° 00	4° 81	29		7° 86	2° 96	8° 58	8° 25
March 2		7° 43	2° 80	4° 99	4° 80	Sept. 3		7° 09	2° 67	8° 91	8° 57
7		8° 34	3° 14	4° 98	4° 79	8		6° 60	2° 48	9° 27	8° 92
12		9° 63	3° 63	4° 98	4° 79	13		6° 31	2° 38	9° 67	9° 31
17		11° 24	4° 23	4° 98	4° 79	18		6° 16	2° 32	10° 11	9° 73
22		12° 90	4° 86	4° 99	4° 80	23		6° 11	2° 30	10° 59	10° 19
27		14° 14	5° 33	5° 00	4° 81	28		6° 12	2° 31	11° 12	10° 70
April 1		14° 55	5° 48	5° 01	4° 82	Oct. 3		6° 20	2° 34	11° 71	11° 26
6		14° 11	5° 31	5° 03	4° 84	8		6° 34	2° 39	12° 36	11° 89
11		13° 18	4° 96	5° 05	4° 86	13		6° 54	2° 46	13° 08	12° 59
16		12° 08	4° 55	5° 08	4° 88	18		6° 83	2° 57	13° 89	13° 37
21		11° 01	4° 15	5° 11	4° 91	23		7° 20	2° 71	14° 81	14° 25
26		10° 05	3° 79	5° 14	4° 94	28		7° 71	2° 90	15° 84	15° 24
May 1		9° 21	3° 47	5° 18	4° 98	Nov. 2		8° 40	3° 16	17° 01	16° 36
6		8° 48	3° 20	5° 22	5° 02	7		9° 32	3° 51	18° 33	17° 62
11		7° 86	2° 96	5° 27	5° 06	12		10° 53	3° 96	19° 83	19° 05
16		7° 34	2° 76	5° 32	5° 11	17		11° 86	4° 46	21° 50	20° 67
21		6° 92	2° 61	5° 38	5° 17	22		12° 64	4° 76	23° 36	22° 47
26		6° 64	2° 50	5° 44	5° 23	27		12° 13	4° 57	25° 35	24° 38
31		6° 50	2° 45	5° 51	5° 30	Dec. 2		10° 73	4° 04	27° 43	26° 38
June 5		6° 53	2° 46	5° 59	5° 38	7		9° 35	3° 52	29° 44	28° 31
10		6° 74	2° 54	5° 68	5° 46	12		8° 30	3° 12	31° 12	29° 93
15		7° 10	2° 67	5° 78	5° 55	17		7° 55	2° 84	32° 20	30° 96
20		7° 59	2° 86	5° 88	5° 65	22		7° 02	2° 64	32° 44	31° 19
25		8° 19	3° 08	5° 99	5° 76	27		6° 65	2° 50	31° 78	30° 56
30		8° 90	3° 35	6° 11	5° 88	32		6° 43	2° 42	30° 39	29° 22
July 5		9° 72	3° 66	6° 24	6° 01						

DECEMBER, 1834.

MEAN TIME.

Days of the Month.	Geocentric.				Heliocentric.	
	Right Ascension.	Declination.	Log. of Dist. from the Earth.	Meridian	Longitude	Latitude
	Noon.	Noon.	Noon.	Passage.	N	S
1	21 42 24.62	S. 14 33 0.1	1.3067000	5 2.2	3	
2	21 42 30.40	14 32 28.7	.3070556	4 58.3		
3	21 42 36.37	14 31 56.4	.3074091	4 54.5		
4	21 42 42.52	14 31 23.2	.3077603	4 5		
5	21 42 48.86	14 30 49.1	.3081091	4		
6	21 42 55.37	14 30 14.1	.3084555			
7	21 43 2.06	14 29 38.2	.308799			
8	21 43 8.92	14 29 1.4	.3091			
9	21 43 15.96	14 28 23.8	.309			
10	21 43 23.17	14 27 45.3	.?			
11	21 43 30.54	14 27 5.9		23	7.54	4.03
12	21 43 38.09	14 26 25.7		28	7.77	4.15
13	21 43 45.80	14 25 4	15.98	Oct. 3	8.01	4.28
14	21 43 53.68	14 25	15.88	8	8.27	4.42
15	21 44 1.72	14 2	15.79	13	8.55	4.57
16	21 44 9.92	1	15.72	18	8.86	4.73
17	21 44 18.28		15.66	23	9.18	4.90
18	21 44 26.79		15.61	28	9.53	5.09
19	21 44 35.1		15.58	Nov. 2	9.90	5.29
20	21 44 44		15.56	7	10.30	5.50
21	21 44 53		15.56	12	10.72	5.72
22	21 45 02		15.56	17	11.15	5.96
23	21 45 11		15.58	22	11.60	6.20
24	21 45 20		15.61	27	12.05	6.43
25	21 45 29		15.65	Dec. 2	12.49	6.67
26	21 45 38		15.70	7	12.90	6.89
27	21 45 47		15.77	12	13.26	7.08
28	21 45 56		15.85	17	13.55	7.23
29	21 46 05		15.95	22	13.76	7.35
30	21 46 14		15.95	27	13.85	7.40
31	21 46 23		15.95	31	13.84	7.39

1834.		MARS.		JUPITER.		1834.		MARS.		JUPITER.	
Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.	Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.
Jan.	1	"	"	"	"	July	5	"	"	"	"
	6	3.58	1.91	1.86	20.20		10	5.43	2.90	1.50	16.31
	11	3.61	1.93	1.83	19.86		15	5.51	2.94	1.51	16.46
		3.64	1.94	1.80	19.53			5.59	2.99	1.52	16.62
	16	3.68	1.96	1.77	19.21		20	5.68	3.04	1.54	16.80
	21	3.71	1.98	1.74	18.90		25	5.78	3.09	1.56	16.99
	26	3.74	2.00	1.71	18.60		30	5.88	3.14	1.58	17.19
	31	3.78	2.02	1.68	18.31	Aug.	4	5.99	3.20	1.60	17.41
Feb.	5	3.82	2.04	1.65	18.03		9	6.10	3.26	1.62	17.64
	10	3.85	2.06	1.63	17.77		14	6.22	3.32	1.64	17.89
	15	3.89	2.08	1.61	17.52		19	6.35	3.39	1.67	18.14
	20	3.93	2.10	1.59	17.29		24	6.49	3.46	1.69	18.41
	25	3.98	2.12	1.57	17.07		29	6.63	3.54	1.72	18.68
March	2	4.02	2.15	1.55	16.87	Sept.	3	6.79	3.62	1.74	18.97
	7	4.06	2.17	1.53	16.68		8	6.96	3.71	1.77	19.27
	12	4.11	2.19	1.52	16.51		13	7.14	3.81	1.80	19.57
	17	4.15	2.22	1.50	16.36		18	7.33	3.92	1.83	19.88
	22	4.20	2.24	1.49	16.22		23	7.54	4.03	1.85	20.19
	27	4.24	2.27	1.48	16.09		28	7.77	4.15	1.88	20.51
April	1	4.29	2.29	1.47	15.98	Oct.	3	8.01	4.28	1.91	20.82
	6	4.34	2.32	1.46	15.88		8	8.27	4.42	1.94	21.13
	11	4.39	2.34	1.45	15.79		13	8.55	4.57	1.97	21.43
	16	4.44	2.37	1.44	15.72		18	8.86	4.73	1.99	21.72
	21	4.49	2.40	1.44	15.66		23	9.18	4.90	2.02	21.99
	26	4.54	2.42	1.43	15.61		28	9.53	5.09	2.04	22.23
May	1	4.60	2.45	1.43	15.58	Nov.	2	9.90	5.29	2.06	22.45
	6	4.65	2.48	1.43	15.56		7	10.30	5.50	2.07	22.63
	11	4.71	2.51	1.43	15.56		12	10.72	5.72	2.09	22.78
	16	4.76	2.54	1.43	15.56		17	11.15	5.96	2.10	22.89
	21	4.82	2.57	1.43	15.58		22	11.60	6.20	2.10	22.96
	26	4.88	2.61	1.43	15.61		27	12.05	6.43	2.11	22.98
	31	4.94	2.64	1.44	15.65	Dec.	2	12.49	6.67	2.11	22.96
June	5	5.00	2.67	1.44	15.70		7	12.90	6.89	2.10	22.90
	10	5.07	2.71	1.45	15.77		12	13.26	7.08	2.09	22.80
	15	5.13	2.74	1.46	15.85		17	13.55	7.23	2.07	22.65
	20	5.20	2.78	1.47	15.95		22	13.76	7.35	2.06	22.47
	25	5.27	2.82	1.48	16.06		27	13.85	7.40	2.04	22.25
	30	5.35	2.86	1.49	16.18						
July	5	5.43	2.90	1.50	16.31		32	13.84	7.39	2.02	22.00

1834.		SATURN.		GEORGIAN.		1834.		SATURN.		GEORGIAN.	
Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.	Mean Noon.		Equat. Hor.Par.	Equat. Semid.	Equat. Hor.Par.	Equat. Semid.
Jan. 1		"	"	"	"	July 5		"	"	"	"
6		0·90	9·35	0·41	1·79	10		0·88	9·15	0·45	1·93
11		0·91	9·43	0·41	1·79	15		0·88	9·07	0·45	1·94
		0·92	9·51	0·41	1·79			0·87	9·00	0·45	1·94
16						20		0·86	8·93	0·45	1·95
21		0·93	9·59	0·41	1·78	25		0·86	8·86	0·45	1·95
26		0·94	9·68	0·41	1·78	30		0·86	8·80	0·45	1·95
		0·94	9·76	0·41	1·78			0·85	8·80	0·45	1·95
31		0·95	9·84	0·41	1·77	Aug. 4		0·84	8·74	0·45	1·96
Feb. 5		0·96	9·91	0·41	1·77	9		0·84	8·68	0·45	1·96
10		0·97	9·99	0·41	1·77	14		0·83	8·63	0·45	1·96
15		0·97	10·06	0·41	1·77	19		0·83	8·58	0·45	1·96
20		0·97	10·12	0·41	1·77	24		0·83	8·53	0·45	1·96
25		0·98	10·17	0·41	1·78	29		0·82	8·49	0·45	1·96
March 2		0·99	10·22	0·41	1·78	Sept. 3		0·82	8·46	0·45	1·96
7		0·99	10·27	0·41	1·78	8		0·82	8·43	0·45	1·95
12		1·00	10·30	0·41	1·78	13		0·81	8·40	0·45	1·95
17		1·00	10·32	0·41	1·79	18		0·81	8·38	0·45	1·95
22		1·00	10·34	0·41	1·79	23		0·81	8·37	0·45	1·94
27		1·00	10·35	0·41	1·79	28		0·81	8·35	0·45	1·94
April 1		1·00	10·34	0·41	1·80	Oct. 3		0·81	8·35	0·44	1·93
6		1·00	10·33	0·42	1·80	8		0·81	8·35	0·44	1·92
11		1·00	10·31	0·42	1·81	13		0·81	8·35	0·44	1·92
16		0·99	10·28	0·42	1·81	18		0·81	8·36	0·44	1·91
21		0·99	10·24	0·42	1·82	23		0·81	8·37	0·44	1·90
26		0·99	10·20	0·42	1·83	28		0·81	8·39	0·44	1·89
May 1		0·98	10·14	0·42	1·84	Nov. 2		0·81	8·41	0·43	1·89
6		0·98	10·08	0·42	1·84	7		0·82	8·44	0·43	1·88
11		0·97	10·02	0·43	1·85	12		0·82	8·47	0·43	1·87
16		0·96	9·95	0·43	1·86	17		0·82	8·51	0·43	1·86
21		0·96	9·88	0·43	1·87	22		0·83	8·55	0·43	1·85
26		0·95	9·80	0·43	1·87	27		0·83	8·60	0·43	1·85
31		0·94	9·72	0·44	1·88	Dec. 2		0·84	8·65	0·43	1·84
June 5		0·93	9·64	0·44	1·89	7		0·84	8·71	0·42	1·83
10		0·92	9·56	0·44	1·90	12		0·85	8·77	0·42	1·82
15		0·92	9·47	0·44	1·91	17		0·85	8·83	0·42	1·81
20		0·91	9·39	0·44	1·91	22		0·86	8·90	0·42	1·81
25		0·90	9·31	0·44	1·92	27		0·87	8·97	0·42	1·80
30		0·89	9·23	0·45	1·93						
July 5		0·88	9·15	0·45	1·93	32		0·87	9·03	0·41	1·79

MEAN RIGHT ASCENSIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Right Ascension.	<i>c</i>	<i>p</i>	<i>q</i>	Δc	Autho- rities.
			^h ^m ^s	^s	^s	^s	^s	
1	γ PEGASI - - -	2.3	0 4 29.54	+ 3.0769	+ 0.00496	- -	- -	P.
2	β Hydri - - -	3	0 16 39.14	2.6051	- 0.04811	- -	- -	R.
3	α CASSIOPEÆ - -	3	0 30 54.60	3.3328	+ 0.02713	- -	- -	P.
4	β Ceti - - -	2.3	0 35 3.37	3.0004	- 0.00280	- -	- -	P.
5	α URSÆ MINOR.	2.3	0 59 31.04	+ 15.3807	+ 4.66488	+ 0.015246	+ 0.0901	P.
6	θ^1 Ceti - - -	3	1 15 31.80	3.0012	+ 0.00088	- -	- -	P.
7	α Eridani - - -	1	1 31 22.21	2.2362	- 0.00654	- -	- -	R.
8	α ARIETIS - - -	3	1 57 36.48	3.3442	+ 0.01014	- -	- -	P.
9	γ Ceti - - -	3	2 34 30.16	+ 3.1069	+ 0.00471	- -	- -	P.
10	α CETI - - -	2.3	2 53 24.08	3.1250	0.00493	- -	- -	P.
11	α PERSEI - - -	2.3	3 12 13.70	4.2244	0.02426	- -	- -	P.
12	η Tauri - - -	3	3 37 23.62	3.5443	0.00896	- -	- -	P.
13	γ^1 Eridani - - -	2.3	3 50 6.17	+ 2.7890	+ 0.00241	- -	- -	P.
14	α TAURI - - -	1	4 26 10.49	3.4257	0.00544	- -	- -	P.
15	α AURIGÆ - - -	1	5 4 8.61	4.4053	0.00916	- -	- -	P.
16	β ORIONIS - - -	1	5 6 22.30	2.8780	0.00209	- -	- -	P.
17	β TAURI - - -	2	5 15 33.14	+ 3.7813	+ 0.00437	- -	- -	P.
18	δ ORIONIS - - -	2	5 23 19.57	3.0603	0.00204	- -	- -	P.
19	α Leporis - - -	3.4	5 25 14.13	2.6420	0.00158	- -	- -	P.
20	ϵ ORIONIS - - -	2.3	5 27 35.45	3.0398	0.00190	- -	- -	P.
21	α Columbæ - - -	2	5 33 29.81	+ 2.1685	+ 0.00151	- -	- -	P.
22	α ORIONIS - - -	1	5 45 58.28	3.2428	0.00152	- -	- -	P.
23	μ Geminorum - -	3	6 12 40.58	3.6257	+ 0.00007	- -	- -	P.
24	51 (Hev.) Cephei -	5	6 18 16.40	30.9860	- 0.48396	- 0.004416	- -	A.
25	α Argus - - -	1	6 20 10.58	+ 1.3278	+ 0.00065	- -	- -	R.
26	α CANIS MAJOR.	1	6 37 39.28	2.6797	0.00061	- -	- 0.0340	P.
27	ϵ Canis Majoris -	2.3	6 51 56.90	2.3555	+ 0.00076	- -	- -	P.
28	δ Geminorum - -	3.4	7 9 57.90	3.5929	- 0.00343	- -	- -	P.
29	α GEMINORUM - -	3	7 23 44.49	+ 3.8583	- 0.00642	- -	- -	P.
30	α CANIS MINOR.	1.2	7 30 24.08	3.1924	0.00192	- -	- 0.0473	P.
31	β GEMINORUM - -	2	7 34 54.24	3.7329	- 0.00618	- -	- 0.0480	P.
32	15 Argus - - -	3.4	8 0 18.39	2.5594	+ 0.00054	- -	- -	P.
33	ϵ Hydræ - - -	4	8 37 46.15	+ 3.1977	- 0.00346	- -	- -	P.
34	ι Ursæ Majoris -	3.4	8 47 31.81	4.2035	0.02220	- -	- 0.0700	P.
35	ι Argus - - -	2	9 12 34.97	1.6106	0.00095	- -	- -	B.
36	α HYDRÆ - - -	2	9 19 14.07	2.9501	0.00068	- -	- -	P.
37	θ Ursæ Majoris -	3	9 21 26.44	+ 4.1797	- 0.02819	- -	- 0.1200	P.
38	ϵ Leonis - - -	3	9 36 11.34	3.4288	0.00896	- -	- -	P.
39	α LEONIS - - -	1	9 59 18.71	3.2228	- 0.00505	- -	- -	P.
40	η Argus - - -	2	10 38 29.25	+ 2.3017	+ 0.01063	- -	- -	R.

MEAN DECLINATIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Declination.	e'	p'	q'	$\Delta o'$	Autho- rities.
			$^{\circ}$ $'$ $''$	$''$	$''$	$''$	$''$	
1	γ PEGASI - - -	2.3	+14 14 18.2	+20.0528	-0.00925	- - -	- - -	P.
2	β Hydri - - -	3	-78 12 44.3	20.0037	0.01863	- - -	- - -	R.
3	α CASSIOPEÆ - -	3	+55 36 13.2	19.8745	0.03749	- - -	- - -	P.
4	β Ceti - - -	2.3	-18 55 12.9	19.8225	0.03813	- - -	- - -	P.
5	α URSE MINOR.	2.3	+88 24 8.6	+19.3842	-0.29272	-0.000986	- - -	P.
6	θ Ceti - - -	3	-9 3 45.6	18.9773	0.07542	- - -	- - -	P.
7	α Eridani - - -	1	-58 6 7.9	18.4837	0.06778	- - -	- - -	R.
8	α ARIETIS - - -	3	+22 39 17.3	17.4733	0.12396	- - -	- - -	P.
9	γ Ceti - - -	3	+2 30 54.1	+15.6691	-0.14522	- - -	- - -	P.
10	α CETI - - -	2.3	+3 25 4.4	14.5846	0.15997	- - -	- - -	P.
11	α PERSEI - - -	2.3	+49 14 54.9	13.4057	0.23239	- - -	- - -	P.
12	η Tauri - - -	3	+23 34 22.0	11.6901	0.21286	- - -	- - -	P.
13	γ Eridani - - -	2.3	-13 59 50.6	+10.7688	-0.17419	- - -	- - -	P.
14	α TAURI - - -	1	+16 9 37.3	7.9835	0.23111	- - -	- - -	P.
15	α AURIGÆ - - -	1	+45 48 54.8	4.8400	0.31294	- - -	- - -	P.
16	β ORIONIS - - -	1	-8 24 15.2	4.6505	0.20529	- - -	- - -	P.
17	β TAURI - - -	2	+28 27 19.8	+3.8654	-0.27152	- - -	- - -	P.
18	δ ORIONIS - - -	2	-0 25 54.9	3.1958	0.22110	- - -	- - -	P.
19	α Leporis - - -	3.4	-17 56 59.4	3.0307	0.19119	- - -	- - -	P.
20	ϵ ORIONIS - - -	2.3	-1 19 2.1	2.8268	0.22015	- - -	- - -	P.
21	α Columbæ - - -	2	-34 10 19.7	+2.3142	-0.15765	- - -	- - -	P.
22	α ORIONIS - - -	1	+7 22 5.1	+1.2269	0.23634	- - -	- - -	P.
23	μ Geminorum - -	3	+22 35 33.7	-1.1088	0.26375	- - -	- - -	P.
24	51 (Hev.) Cephei -	5	+87 15 59.2	1.5975	2.25218	+0.000377	- - -	P.
25	α Argus - - -	1	-52 36 19.8	-1.7634	-0.09603	- - -	- - -	R.
26	α CANIS MAJOR.	1	-16 29 20.3	3.2805	0.19200	- - -	-1.1400	P.
27	ϵ Canis Majoris -	2.3	-28 44 42.9	4.5074	0.16630	- - -	- - -	P.
28	δ Geminorum - -	3.4	+22 17 15.3	6.0282	0.24845	- - -	- - -	P.
29	α GEMINORUM -	3	+32 15 10.9	-7.1665	-0.26106	- - -	- - -	P.
30	α CANIS MINOR.	1.2	+5 39 15.9	7.7078	0.21307	- - -	-0.9800	P.
31	β GEMINORUM -	2	+28 25 46.8	8.0701	0.24406	- - -	- - -	P.
32	15 Argus - - -	3.4	-23 49 7.5	10.0516	0.15909	- - -	- - -	P.
33	ϵ Hydræ - - -	4	+7 2 14.3	-12.7420	-0.17701	- - -	- - -	P.
34	ϵ Ursæ Majoris -	3.4	+48 42 9.1	13.3899	0.22119	- - -	- - -	P.
35	ϵ Argus - - -	2	-58 33 53.0	14.9391	0.07476	- - -	- - -	B.
36	α HYDRÆ - - -	2	-7 55 31.2	15.3211	0.13513	- - -	- - -	P.
37	θ Ursæ Majoris -	3	+52 26 48.3	-15.4450	-0.19073	- - -	-0.6000	P.
38	ϵ Leonis - - -	3	+24 33 11.0	16.2359	0.14289	- - -	- - -	P.
39	α LEONIS - - -	1	+12 47 43.3	17.3394	0.11393	- - -	- - -	P.
40	η Argus - - -	2	-58 47 29.1	-18.8014	-0.05390	- - -	- - -	R.

MEAN RIGHT ASCENSIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Right Ascension.	<i>c</i>	<i>p</i>	<i>q</i>	Δc	Autho- rities.
			^h ^m ^s	^s	^s	^s	^s	
41	α URSE MAJOR.	1.2	10 53 9.86	+ 3.8140	- 0.04200	- -	- -	P.
42	δ LEONIS - - -	3	11 5 3.60	3.1950	- 0.00666	- -	- -	P.
43	δ Hydræ et Crat.	3.4	11 10 50.82	3.0000	+ 0.00313	- -	- -	P.
44	β LEONIS - - -	2.3	11 40 23.04	3.1020	- 0.00375	- -	- 0.0353	P.
45	γ URSE MAJOR.	2	11 44 51.01	+ 3.1947	- 0.02212	- -	- -	P.
46	β Chamæleontis	5	12 8 34.07	3.3130	+ 0.08513	- -	- -	R.
47	α^2 Crucis - - -	1	12 17 12.46	3.2601	0.03313	- -	- -	R.
48	β Corvi - - -	2.3	12 25 28.39	3.1315	0.00811	- -	- -	P.
49	12 Canum Venat.	2.3	12 48 3.92	+ 2.8429	- 0.00775	- -	- -	P.
50	α VIRGINIS - - -	1	13 16 14.86	3.1493	+ 0.00570	- -	- -	P.
51	η URSE MAJOR.	2.3	13 40 49.96	2.3875	- 0.00529	- -	- 0.0333	P.
52	η Bootis - - -	3	13 46 35.62	2.8607	- 0.00034	- -	- -	P.
53	β Centauri - - -	1	13 51 54.53	+ 4.1372	+ 0.04147	- -	- -	R.
54	α BOOTIS - - -	1	14 7 54.64	2.8115	0.00017	- -	- 0.0780	P.
55	α^2 Centauri - - -	1	14 28 9.21	4.4723	0.04350	- -	- -	R.
56	ϵ BOOTIS - - -	3	14 37 33.77	2.6229	0.00002	- -	- -	P.
57	α^2 LIBRÆ - - -	3	14 41 29.34	+ 3.3076	+ 0.00778	- -	- -	P.
58	β URSE MINOR.	3	14 51 17.40	- 0.2867	0.05307	- -	- -	P.
59	β Libræ - - -	2.3	15 7 52.23	+ 3.2206	0.00595	- -	- -	P.
60	α CORON. BOR.	2	15 27 29.59	2.5275	0.00124	- -	- -	P.
61	α SERPENTIS - -	2.3	15 35 54.05	+ 2.9381	+ 0.00317	- -	- -	P.
62	ζ URSE Minoris -	4	15 50 18.69	- 2.3864	0.10413	- -	- -	P.
63	β^1 Scorpii - - -	2	15 55 33.97	+ 3.4718	0.00722	- -	- -	P.
64	δ OPHIUCHI - - -	3	16 5 26.69	3.1368	0.00417	- -	- -	P.
65	α SCORPII - - -	1	16 18 59.76	+ 3.6612	+ 0.00770	- -	- -	P.
66	η Draconis - - -	3	16 21 42.11	0.7928	0.00966	- -	- -	P.
67	α Triang. Aust.	2	16 30 45.13	6.2432	0.04713	- -	- -	R.
68	σ Octantis - - -	6	16 55 21.43	+ 101.1251	20.55805	- 0.131666	- -	B.
69	ϵ URSE Minoris -	4	17 3 40.59	- 6.5262	+ 0.14599	- -	- 0.0547	P.
70	α HERCULIS - - -	3.4	17 6 53.98	+ 2.7314	0.00187	- -	- -	P.
71	β DRACONIS - - -	2	17 26 35.77	1.3504	0.00272	- -	- -	P.
72	α OPHIUCHI - - -	2	17 27 2.84	2.7722	0.00163	- -	- -	P.
73	γ DRACONIS - - -	2	17 52 39.77	+ 1.3894	+ 0.00170	- -	- -	P.
74	μ^1 Sagittarii - -	3.4	18 3 36.05	+ 3.5859	+ 0.00068	- -	- -	P.
75	δ URSE MINOR.	3	18 27 8.26	- 19.1807	- 0.39314	+ 0.001487	+ 0.0301	P.
76	α LYRÆ - - -	1	18 31 11.08	+ 2.0115	+ 0.00091	- -	- -	P.
77	β LYRÆ - - -	3	18 43 48.36	+ 2.2121	+ 0.00084	- -	- -	P.
78	ζ AQUILÆ - - -	3	18 57 35.90	2.7565	+ 0.00025	- -	- -	P.
79	δ AQUILÆ - - -	3.4	19 16 55.59	3.0088	- 0.00075	- -	- -	P.
80	γ AQUILÆ - - -	3	19 38 10.70	+ 2.8512	- 0.00042	- -	- -	P.

MEAN DECLINATIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Declination.	c'	p'	q'	$\Delta c'$	Autho- rities.
			$^{\circ}$ $'$ $''$	$''$	$''$	$''$	$''$	
41	α URSÆ MAJOR.	1.2	+62 40 1'4	-19'2098	-0'07532	- -	- -	P.
42	δ LEONIS - - -	3	+21 27 15'2	19'4831	0'05061	- -	- -	P.
43	δ Hydræ et Crat.	3.4	-13 51 32'3	19'5972	0'04182	- -	- -	P.
44	β LEONIS - - -	2.3	+15 31 20'7	19'9832	0'01428	- -	- -	P.
45	γ URSÆ MAJOR.	2	+54 38 24'9	-20'0129	-0'01055	- -	- -	P.
46	β Chamæleontis	5	-78 22 1'2	20'0426	+0'01388	- -	- -	R.
47	α^2 Crucis - - -	1	-62 9 23'9	20'0002	0'02267	- -	- -	R.
48	β Corvi - - -	2.3	-22 27 16'7	19'9329	0'03015	- -	- -	P.
49	12 Canum Venat.	2.3	+39 14 18'2	-19'6172	+0'04791	- -	- -	P.
50	α VIRGINIS - -	1	-10 16 14'7	18'9569	0'07959	- -	- -	P.
51	η URSÆ MAJOR.	2.3	+50 9 52'7	18'1466	0'07751	- -	- -	P.
52	η Bootis - - -	3	+19 15 12'7	17'9262	0'09791	- -	- -	P.
53	β Centauri - - -	1	-59 32 55'1	-17'7127	+0'14582	- -	- -	R.
54	α BOOTIS - - -	1	+20 4 17'4	17'0132	0'11270	- -	-1'9600	P.
55	α^2 Centauri - - -	1	-60 7 34'5	16'0099	0'20033	- -	- -	R.
56	ϵ BOOTIS - - -	3	+27 47 43'6	15'5005	0'12513	- -	- -	P.
57	α^2 LIBRÆ - - -	3	-15 19 45'5	-15'2802	+0'15995	- -	- -	P.
58	β URSÆ MINOR.	3	+74 51 1'4	14'7108	-0'01065	- -	- -	P.
59	β Libræ - - -	2.3	- 8 44 58'5	13'6869	+0'17499	- -	- -	P.
60	α CORON. BOR.	2	+27 17 31'4	12'3830	0'14799	- -	- -	P.
61	α SERPENTIS - -	2.3	+ 6 58 0'8	-11'7960	+0'17614	- -	- -	P.
62	ζ URSÆ MINORIS.	4	+78 18 47'8	10'7534	-0'14430	- -	- -	P.
63	β^1 Scorpii - - -	2	-19 19 55'4	10'3625	+0'21929	- -	- -	P.
64	δ OPHIUCHI - -	3	- 3 14 57'6	9'6129	0'20310	- -	- -	P.
65	α SCORPII - - -	1	-26 2 43'6	- 8'5559	+0'24356	- -	- -	P.
66	η Draconis - - -	3	+61 54 2'4	8'3411	0'05460	- -	- -	P.
67	α Triang. Aust.	2	-68 42 6'2	7'6145	0'42305	- -	- -	R.
68	σ Octantis - - -	6	-89 14 58'6	5'5824	+7'08479	+0'014609	- -	B.
69	ϵ URSÆ MINORIS -	4	+82 18 11'6	- 4'8796	-0'46432	- -	- -	P.
70	α HERCULIS - -	3.4	+14 35 27'3	4'6055	+0'19499	- -	- -	P.
71	β DRACONIS - -	2	+52 25 49'7	2'9129	0'09815	- -	- -	P.
72	α OPHIUCHI - -	2	+12 41 27'3	2'8739	0'20078	- -	- -	P.
73	γ DRACONIS - -	2	+51 30 43'4	- 0'6420	+0'10142	- -	- -	P.
74	μ^1 Sagittarii - -	3.4	-21 5 36'9	+ 0'3151	+0'26140	- -	- -	P.
75	δ URSÆ MINOR.	3	+86 35 6'4	2'3694	-1'38959	-0'000262	- -	P.
76	α LYRÆ - - -	1	+38 37 49'5	2'7207	+0'14468	- -	- -	P.
77	β LYRÆ - - -	3	+33 10 14'2	+ 3'8103	+0'15747	- -	- -	P.
78	ζ AQUILÆ - - -	3	+13 37 3'2	4'9877	0'19350	- -	- -	P.
79	δ AQUILÆ - - -	3.4	+ 2 46 58'7	6'6064	0'20558	- -	- -	P.
80	γ AQUILÆ - - -	3	+10 12 19'4	+ 8'3316	+0'18713	- -	- -	P.

MEAN RIGHT ASCENSIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Right Ascension.	<i>c</i>	<i>p</i>	<i>q</i>	Δc	Autho- rities.
81	α AQUILÆ - - -	1.2	^h 19 ^m 42 ^s 29.36	+ 2.8916	- 0.00061	- - -	+ 0.0340	P.
82	β AQUILÆ - - -	3.4	19 46 57.84	2.9449	0.00079	- - -	- - -	P.
83	α^2 CAPRICORNI -	3	20 8 37.02	3.3329	0.00412	- - -	- - -	P.
84	α Pavonis - - -	2	20 12 8.63	+ 4.8142	0.02941	- - -	- - -	R.
85	λ Ursæ Minoris-	5	20 29 43.10	- 47.4477	- 13.76294	- 0.017971	- - -	A.
86	α CYGNI - - -	1	20 35 38.38	+ 2.0414	+ 0.00116	- - -	- - -	P.
87	δ CYGNI - - -	5.6	20 59 17.41	2.3314	0.00221	- - -	+ 0.3587	P.
88	ζ Cygni - - -	3	21 5 42.35	2.5480	+ 0.00195	- - -	- - -	P.
89	α CEPHEI - - -	3	21 14 30.99	+ 1.4174	- 0.00340	- - -	- - -	P.
90	β AQUARIÏ - - -	3	21 22 36.27	3.1640	0.00353	- - -	- - -	P.
91	β CEPHEI - - -	3	21 26 26.12	0.8114	0.01659	- - -	- - -	P.
92	ϵ Pegasi - - -	2.3	21 35 50.30	2.9442	0.00026	- - -	- - -	P.
93	α AQUARIÏ - - -	3	21 57 3.09	+ 3.0838	- 0.00209	- - -	- - -	P.
94	α Gruis - - -	2	21 57 28.38	3.8210	- 0.02308	- - -	- - -	R.
95	ζ Pegasi - - -	3	22 32 59.17	2.9833	+ 0.00111	- - -	- - -	P.
96	α PISCIS AUST.	1	22 48 14.31	3.3130	- 0.01063	- - -	- - -	P.
97	α PEGASÏ - - -	2	22 56 17.98	+ 2.9767	+ 0.00277	- - -	- - -	P.
98	ι Piscium - - -	4.5	23 31 12.69	3.0564	0.00142	- - -	- - -	P.
99	γ Cephei - - -	3	23 32 26.49	2.3925	0.03539	- - -	- - -	P.
100	α ANDROMEDÆ -	1	23 59 37.04	+ 3.0690	+ 0.00900	- - -	- - -	P.

The *standard* Stars in the preceding Catalogue are distinguished by capital letters.

The Authorities for the Mean Right Ascension and Declination for January 1, 1830, are given in the last column of each page, in which P denotes the positions furnished by Mr. POND; A, those supplied by Professor AIRY; R, the results derived from Mr. RUMKER's *Preliminary Catalogue* of Southern Stars for 1827, published at Hamburgh in 1832; and B, the values deduced from Sir Thomas BRISBANE's Observations at Paramatta, now in course of Reduction by Mr. RICHARDSON, of the Royal Observatory, by order of the Government.

The numbers in the columns *c*, *p*, *q*, and *c'*, *p'*, *q'*, have been computed from the following formulæ, viz.

$$\begin{aligned}
 c &= \frac{d\alpha}{dt} = m' + n' R \\
 \frac{p}{100} &= \frac{1}{2} \frac{d^2\alpha}{dt^2} = \frac{m''}{2} + \frac{n''}{2} R + \frac{n'}{2} S \\
 \frac{q}{100} &= \frac{1}{6} \frac{d^3\alpha}{dt^3} = \frac{n'''}{3} S + \frac{n'}{6} S' - \frac{n' a' r}{6} \left(\frac{d\alpha}{dt} \right) + \frac{n' b' r'}{3} \left(\frac{d\delta}{dt} \right)^2
 \end{aligned}$$

MEAN DECLINATIONS OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1830.

No.	Names of Stars.	Mag.	Declination.	c'	p'	q'	$\Delta c'$	Autho- rities.
81	α AQUILÆ - - -	1.2	+ 8 25 33.2	+ 8.6732	+ 0.19028	- -	- -	P.
82	β AQUILÆ - - -	3.4	+ 5 59 19.3	9.0247	0.18961	- -	- 0.5400	P.
83	α^2 CAPRICORNI -	3	- 13 3 52.4	10.6742	0.20320	- -	- -	P.
84	α Pavonis - - -	2	- 57 16 10.6	10.9842	+ 0.29168	- -	- -	R.
85	λ URSE MINORIS	5	+ 88 47 45.3	+ 12.1902	- 2.75075	- 0.007724	- -	P.
86	α CYGNI - - -	1	+ 44 40 35.3	12.5978	+ 0.11280	- -	- -	P.
87	δ^1 CYGNI - - -	5.6	+ 37 55 5.7	14.1382	0.11718	- -	+ 3.3000	P.
88	ζ Cygni - - -	3	+ 29 32 2.1	14.5309	0.12457	- -	- -	P.
89	α CEPHEI - - -	3	+ 61 52 2.3	+ 15.0515	+ 0.06468	- -	- -	P.
90	β AQUARII - - -	3	- 6 18 51.0	15.5098	0.14255	- -	- -	P.
91	β CEPHEI - - -	3	+ 69 48 56.0	15.7202	0.03295	- -	- -	P.
92	ϵ Pegasi - - -	2.3	+ 9 5 59.4	16.2179	0.12240	- -	- -	P.
93	α AQUARII - - -	3	- 1 8 30.5	+ 17.2891	+ 0.11077	- -	- -	P.
94	α Gruis - - -	2	- 47 46 45.3	17.2579	0.13781	- -	- -	R.
95	ζ Pegasi - - -	3	+ 9 56 47.5	18.6234	0.07613	- -	- -	P.
96	α PISCIS AUST.-	1	- 30 31 14.6	19.0815	0.06981	- -	- -	P.
97	α PEGASI - - -	2	+ 14 17 34.2	+ 19.2869	+ 0.05490	- -	- -	P.
98	ϵ Piscium - - -	4.5	+ 4 42 21.7	19.8986	0.02312	- -	- 0.5500	P.
99	γ Cephei - - -	3	+ 76 41 2.7	19.9118	+ 0.01611	- -	- -	P.
100	α ANDROMEDÆ -	1	+ 28 9 6.5	+ 20.0566	- 0.00448	- -	- -	P.

$$c' = \frac{d\delta}{dt} = n' \cos \alpha$$

$$\frac{p'}{100} = \frac{1}{2} \frac{d^2\delta}{dt^2} = \frac{n''}{2} \cos \alpha - \frac{n'}{2} \sin \alpha \left(\frac{d\alpha}{dt} \right) \sin 1''$$

$$\frac{q'}{100} = \frac{1}{6} \frac{d^3\delta}{dt^3} = \left\{ -\frac{n''}{3} \sin \alpha \left(\frac{d\alpha}{dt} \right) - \frac{n'}{6} \sin \alpha \left(\frac{d^2\alpha}{dt^2} \right) - \frac{n' a}{6} \left(\frac{d\alpha}{dt} \right)^2 \right\} \sin 1''$$

Where α is the Mean R. A. and δ the Mean Declination on Jan. 1, 1830,

$$\left. \begin{aligned} m' \text{ (for 1830)} &= 46.0529316; m'' = 0.000308645 \\ n' \text{ (for 1830)} &= 20.0566584; n'' = -0.000097020 \end{aligned} \right\} \text{ BESSEL'S Tab. Reg. p. x.}$$

$$\left. \begin{aligned} a &= \cos \alpha \sin 1''; b = \sec^2 \delta \sin 1''; r = \tan \alpha \sin 1''; R = \sin \alpha \tan \delta \\ a' &= a \tan \delta; b' = b \sin \alpha; r' = \tan \delta \sin 1'' \end{aligned} \right\}$$

$$S = a' \left(\frac{d\alpha}{dt} \right) + b' \left(\frac{d\delta}{dt} \right)$$

$$S' = a' \left(\frac{d^2\alpha}{dt^2} \right) + b' \left(\frac{d^2\delta}{dt^2} \right) + 2ab \left(\frac{d\alpha}{dt} \right) \left(\frac{d\delta}{dt} \right)$$

The annual proper motions, Δc and $\Delta c'$, are those adopted by Mr. BAILY, in the Astronomical Society's Catalogue, except for α and δ Ursæ Minoris, which have been taken from BESSEL'S Tab. Reg. at pp. xliii and xlv.

MEAN PLACES OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1834.

No.	Names of Stars.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
			^h ^m ^s	^s	[°] ['] ["]	["]
1	γ PEGASI - - -	2.3	0 4 41.848	+ 3.0773	N.14 15 38.41	+20.052
2	β Hydri - - -	3	0 16 49.553	2.6008	S.78 11 24.27	20.002
3	α CASSIOPEÆ - -	3	0 31 7.936	3.3352	N.55 37 32.69	19.871
4	β Ceti - - -	2.3	0 35 15.371	3.0001	S.18 53 53.62	19.819
5	α URSÆ MINOR.	2.3	1 0 33.679	+15.8997*	N.88 25 26.09	+19.357
6	θ Ceti - - -	3	1 15 43.805	3.0013	S. 9 2 29.70	18.971
7	α Eridani - - -	1	1 31 31.154	2.2356	S.58 4 54.02	18.478
8	α ARIETIS - - -	3	1 57 49.858	3.3451	N.22 40 27.17	17.462
9	γ Ceti - - -	3	2 34 42.588	+ 3.1073	N. 2 31 56.75	+15.656
10	α CETI - - -	2.3	2 53 36.581	3.1254	N. 3 26 2.71	14.570
11	α PERSEI - - -	2.3	3 12 30.602	4.2266	N.49 15 48.49	13.385
12	η Tauri - - -	3	3 37 37.799	3.5451	N.23 35 8.73	11.671
13	γ ¹ Eridani - - -	2.3	3 50 17.326	+ 2.7892	S.13 59 7.55	+10.753
14	α TAURI - - -	1	4 26 24.194	3.4262	N.16 10 9.20	7.963
15	α AURIGÆ - - -	1	5 4 26.233	4.4061	N.45 49 14.11	4.812
16	β ORIONIS - - -	1	5 6 33.812	2.8782	S. 8 23 56.63	4.632
17	β TAURI - - -	2	5 15 48.266	+ 3.7817	N.28 27 35.22	+ 3.841
18	δ ORIONIS - - -	2	5 23 31.812	3.0605	S. 0 25 42.15	3.176
19	α Leporis - - -	3.4	5 25 24.698	2.6421	S.17 56 47.31	3.013
20	ε ORIONIS - - -	2.3	5 27 47.610	3.0400	S. 1 18 50.83	2.807
21	α Columbæ - - -	2	5 33 38.484	+ 2.1686	S.34 10 10.47	+ 2.300
22	α ORIONIS - - -	1	5 46 11.251	3.2429	N. 7 22 9.97	+ 1.206
23	μ Geminorum - -	3	6 12 55.083	3.6257	N.22 35 29.22	- 1.133
24	51 (Hev.) Cephei	5	6 20 20.264	30.9397	N.87 15 52.45	1.800
25	α Argus - - -	1	6 20 15.891	+ 1.3279	S.52 36 26.87	- 1.772
26	α CANIS MAJOR.	1	6 37 49.863	2.6458*	S.16 29 38.01	4.438*
27	ε Canis Majoris.	2.3	6 52 6.322	2.3556	S.28 45 0.96	4.522
28	δ Geminorum - -	3.4	7 10 12.271	3.5926	N.22 16 51.15	6.051
29	α GEMINORUM -	3	7 23 59.922	+ 3.8577	N.32 14 42.19	- 7.190
30	α CANIS MINOR.	1.2	7 30 36.660	3.1449*	N. 5 38 41.11	8.707*
31	β GEMINORUM -	2	7 35 8.979	3.6843*	N.28 25 14.48	8.092
32	15 Argus - - -	3.4	8 0 28.628	2.5594	S.23 49 47.73	10.066
33	ε Hydræ - - -	4	8 37 58.940	+ 3.1974	N. 7 1 23.30	-12.758
34	ι Ursæ Majoris -	3.4	8 47 48.341	4.1315*	N.48 41 15.51	13.410
35	ι Argus - - -	2	9 12 41.412	1.6105	S.58 34 52.77	14.946
36	α HYDRÆ - - -	2	9 19 25.870	2.9500	S. 7 56 32.51	15.333
37	θ Ursæ Majoris -	3	9 21 42.674	+ 4.0572*	N.52 25 44.09	-16.062*
38	ε Leonis - - -	3	9 36 25.054	3.4280	N.24 32 6.03	16.249
39	α LEONIS - - -	1	9 59 31.600	3.2223	N.12 46 33.92	17.350
40	η Argus - - -	2	10 38 38.458	+ 2.3027	S.58 48 44.35	-18.806

FIXED STARS.

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MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1834.

No.	Names of Stars.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
			^h ^m ^s	^s	[°] ['] ["]	["]
41	α URSE MAJOR.	1.2	10 53 25.109	+ 3.8102	N.62 38 44.55	-19.217
42	δ LEONIS - - -	3	11 5 16.379	3.1944	N.21 25 57.26	19.488
43	δ Hydræ et Crat.	3.4	11 11 2.821	3.0003	S.13 52 50.70	19.601
44	β LEONIS - - -	2.3	11 40 35.306	3.0664*	N.15 30 0.77	19.984
45	γ URSE MAJOR.	2	11 45 3.785	+ 3.1927	N.54 37 4.85	-20.014
46	β Chamæleontis	5	12 8 47.336	3.3207	S.78 23 21.37	20.041
47	α ² Crucis - - -	1	12 17 25.506	3.2631	S.62 10 43.90	19.998
48	β Corvi - - -	2.3	12 25 40.917	3.1322	S.22 28 36.43	19.930
49	12 Canum Venat.	2.3	12 48 15.290	+ 2.8422	N.39 12 59.74	-19.613
50	α VIRGINIS - -	1	13 16 27.458	3.1498	S.10 17 30.52	18.950
51	η URSE MAJOR.	2.3	13 40 59.376	2.3537*	N.50 8 40.13	18.140
52	η Bootis - - -	3	13 46 47.063	2.8607	N.19 14 1.01	17.917
53	β Centauri - -	1	13 52 11.085	+ 4.1409	S.59 34 5.93	-17.700
54	α BOOTIS - - -	1	14 8 5.574	2.7335*	N.20 3 1.53	18.963*
55	α ² Centauri - -	1	14 28 27.106	4.4762	S.60 8 38.51	15.992
56	ε BOOTIS - - -	3	14 37 44.262	2.6229	N.27 46 41.62	15.489
57	α ² LIBRÆ - - -	3	14 41 42.572	+ 3.3083	S.15 20 46.60	-15.266
58	β URSE MINOR.	3	14 51 16.262	- 0.2819	N.74 50 2.56	14.712
59	β Libræ - - -	2.3	15 8 5.113	+ 3.2211	S. 8 45 53.22	13.671
60	α CORON. BOR.	2	15 27 39.700	2.5276	N.27 16 41.89	12.370
61	α SERPENTIS -	2.3	15 36 5.803	+ 2.9384	N. 6 57 13.64	-11.780
62	ζ Urse Minoris	4	15 50 9.161	- 2.3770	N.78 18 4.76	10.766
63	β ² Scorpii - -	2	15 55 47.858	+ 3.4724	S.19 20 36.82	10.343
64	δ OPHIUCHI - -	3	16 5 39.238	3.1372	S. 3 15 36.02	9.595
65	α SCORPII - - -	1	16 19 14.406	+ 3.6619	S.26 3 17.79	- 8.534
66	η Draconis - -	3	16 21 45.283	0.7937	N.61 53 29.04	8.336
67	α Triang. Aust.	2	16 31 10.110	6.2474	S.68 42 36.59	7.576
68	σ Octantis - -	6	17 2 9.135	+102.8950	S.89 15 19.79	4.936
69	ε Urse Minoris	4	17 3 14.290	- 6.5678*	N.82 17 52.01	- 4.921
70	α HERCULIS - -	3.4	17 7 4.906	+ 2.7316	N.14 35 8.91	4.588
71	β DRACONIS - -	2	17 26 41.172	1.3506	N.52 25 38.06	2.904
72	α OPHIUCHI - -	2	17 27 13.929	2.7723	N.12 41 15.84	2.856
73	γ DRACONIS - -	2	17 52 45.328	+ 1.3896	N.51 30 40.85	- 0.633
74	μ ¹ Sagittarii - -	3.4	18 3 50.394	+ 3.5860	S.21 5 35.60	+ 0.339
75	δ URSE MINOR.	3	18 25 51.596	- 19.1850*	N.86 35 15.65	2.244
76	α LYRÆ - - -	1	18 31 19.126	+ 2.0116	N.38 38 0.41	2.734
77	β LYRÆ - - -	3	18 43 57.209	+ 2.2122	N.33 10 29.47	+ 3.824
78	ζ AQUILÆ - - -	3	18 57 46.926	2.7565	N.13 37 23.18	5.005
79	δ AQUILÆ - - -	3.4	19 17 7.625	3.0087	N. 2 47 25.16	6.625
80	γ AQUILÆ - - -	3	19 38 22.105	+ 2.8512	N.10 12 52.76	+ 8.348

MEAN PLACES OF 100 PRINCIPAL FIXED STARS,
FOR JANUARY 1, 1834.

No.	Names of Stars.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
81	α AQUILÆ - - -	1.2	^h 19 ^m 42 ^s 41.062	+ 2.9255*	N. 8° 26' 7".92	+ 8".690
82	β AQUILÆ - - -	3.4	19 47 9.620	2.9448	N. 5 59 53.27	8.502*
83	α^* CAPRICORNI -	3	20 8 50.351	3.3325	S. 13 3 9.67	10.692
84	α PAVONIS - - -	2	20 12 27.882	+ 4.8116	S. 57 15 26.82	10.960
85	λ URSE MINORIS	5	20 26 31.096	-48.6973	N. 88 48 33.63	+11.938
86	α CYGNI - - -	1	20 35 46.546	+ 2.0415	N. 44 41 25.71	12.608
87	β CYGNI - - -	5.6	20 59 28.171	2.6903*	N. 37 56 15.47	17.449*
88	ζ CYGNI - - -	3	21 5 52.542	2.5482	N. 29 33 0.24	14.548
89	α CEPHEI - - -	3	21 14 36.659	+ 1.4171	N. 61 53 2.52	+15.057
90	β AQUARI - - -	3	21 22 48.925	3.1637	S. 6 17 48.94	15.523
91	β CEPHEI - - -	3	21 26 29.363	0.8099	N. 69 49 58.89	15.723
92	ϵ PEGASI - - -	2.3	21 36 2.077	2.9442	N. 9 7 4.29	16.229
93	α AQUARI - - -	3	21 57 15.425	+ 3.0836	S. 1 7 21.53	+17.249
94	α GRUIS - - -	2	21 57 43.660	3.8189	S. 47 45 36.25	17.270
95	ζ PEGASI - - -	3	22 33 11.104	2.9835	N. 9 58 2.03	18.635
96	α PISCIS. AUST.	1	22 48 27.560	3.3120	S. 30 29 58.26	19.088
97	α PEGASI - - -	2	22 56 29.887	+ 2.9769	N. 14 18 51.36	+19.292
98	ϵ PISCIIUM - - -	4.5	23 31 24.916	3.0565	N. 4 43 39.10	19.351*
99	γ CEPHEI - - -	3	23 32 36.066	2.3957	N. 76 42 22.35	19.913
100	α ANDROMEDÆ	1	23 59 49.317	+ 3.0698	N. 28 10 26.73	+20.056

The Mean Places and Annual Variations of the 100 Stars for Jan. 1, 1834, contained in the preceding Catalogue, have been deduced from the Catalogue for 1830, by means of the following Formulæ:

Let α' and δ' represent respectively the Mean R. A. and Declination, and $\Delta \alpha'$, $\Delta \delta'$, the Annual Variations, of a Star for any Epoch (1830 + t). Then,

$$\alpha' = \alpha + (c + \Delta c) t + \frac{p}{100} t^2 + \frac{q}{100} t^3$$

$$\delta' = \delta + (c' + \Delta c') t + \frac{p'}{100} t^2 + \frac{q'}{100} t^3$$

$$\Delta \alpha' = c + \Delta c + \frac{p}{100} (2t + 1) + \frac{q}{100} (3t^2 + 3t + 1)$$

$$\Delta \delta' = c' + \Delta c' + \frac{p'}{100} (2t + 1) + \frac{q'}{100} (3t^2 + 3t + 1)$$

The Annual Variations, into which Δc and $\Delta c'$ enter, are distinguished by an Asterisk.

FORMULÆ OF REDUCTION,

ACCORDING TO PROFESSOR BESSEL.

1.—*Adopting the Notation and Coefficients employed by Mr. Baily, in his Introduction to the New Tables of the Astronomical Society of London.*

$$A = -18^{\prime\prime}.6768 \cos \odot$$

$$B = -20^{\prime\prime}.3600 \sin \odot$$

$$C = t - 0^{\prime\prime}.02495 \sin 2 \odot - 0^{\prime\prime}.34362 \sin \Omega + 0^{\prime\prime}.00413 \sin 2 \Omega - 0^{\prime\prime}.004 \sin 2 \zeta$$

$$D = -0^{\prime\prime}.5447 \cos 2 \odot - 9^{\prime\prime}.2500 \cos \Omega + 0^{\prime\prime}.0903 \cos 2 \Omega - 0^{\prime\prime}.090 \cos 2 \zeta$$

$$a = \cos \alpha \sec \delta$$

$$b = \sin \alpha \sec \delta$$

$$c = 46^{\prime\prime}.0206 + 20^{\prime\prime}.0426 \sin \alpha \tan \delta$$

$$d = \cos \alpha \tan \delta$$

$$a' = \tan \omega \cos \delta - \sin \alpha \sin \delta$$

$$b' = \cos \alpha \sin \delta$$

$$c' = 20^{\prime\prime}.0426 \cos \alpha$$

$$d' = -\sin \alpha$$

Δc = the annual proper motion in Right Ascension.

$\Delta c'$ = the annual proper motion in Declination.

Where t denotes the time from the beginning of the year, expressed in fractional parts of a year, \odot the Sun's and ζ the Moon's true longitude, Ω the mean longitude of the Moon's node, and ω the obliquity of the Ecliptic, each for the time t : α the mean Right Ascension and δ the mean Declination for the beginning of the year. Then for the time represented by t ,

$$\text{Apparent R.A.} = \alpha + A a + B b + C c + D d + t \Delta c.$$

$$\text{Apparent Dec.} = \delta + A a' + B b' + C c' + D d' + t \Delta c'.$$

2.—*Using the same Notation and Coefficients, and assuming*

$$46^{\prime\prime}.0206 C = f$$

$$B = h \cos H$$

$$20^{\prime\prime}.0426 C = g \cos G$$

$$A = h \sin H$$

$$D = g \sin G$$

$$A \tan \omega = i$$

$$\text{Apparent R.A.} = \alpha + f + t \Delta c$$

$$+ g \sin (G + \alpha) \tan \delta + h \sin (H + \alpha) \sec \delta$$

$$\text{Apparent Dec.} = \delta + i \cos \delta + t \Delta c'$$

$$+ g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta$$

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.						
1834.	At Greenwich Mean Midnight.					
	<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>
Jan. 1	— 15·32	+ 6·80	168 49	+ 20·30	349 43	— 1·57
6	14·51	6·44	168 59	20·23	345 0	2·27
11	13·73	6·09	169 18	20·14	340 15	2·95
16	12·96	5·74	169 49	20·04	335 27	3·61
21	— 12·23	+ 5·40	170 31	+ 19·92	330 36	— 4·24
26	11·53	5·08	171 25	19·78	325 42	4·84
31	10·86	4·77	172 31	19·63	320 44	5·39
Feb. 5	10·23	4·48	173 50	19·49	315 42	5·91
10	— 9·64	+ 4·21	175 19	+ 19·34	310 35	— 6·37
15	9·07	3·96	176 57	19·20	305 25	6·79
20	8·54	3·72	178 43	19·06	300 11	7·15
25	8·04	3·50	180 33	18·94	294 53	7·46
March 2	— 7·56	+ 3·30	182 24	+ 18·84	289 32	— 7·71
7	7·11	3·10	184 15	18·77	284 10	7·90
12	6·66	2·92	186 2	18·71	278 45	8·02
17	6·23	2·74	187 44	18·68	273 20	8·09
22	— 5·80	+ 2·56	189 17	+ 18·68	267 56	— 8·10
27	5·36	2·38	190 42	18·70	262 33	8·05
April 1	4·92	2·19	191 58	18·75	257 12	7·93
6	4·46	1·99	193 7	18·82	251 54	7·76
11	— 3·98	+ 1·79	194 9	+ 18·91	246 40	— 7·54
16	3·48	1·57	195 10	19·02	241 29	7·25
21	2·95	1·34	196 17	19·15	236 24	6·92
26	2·39	1·09	197 42	19·28	231 23	6·54
May 1	— 1·80	+ 0·84	199 58	+ 19·42	226 28	— 6·11
6	1·18	0·57	204 41	19·56	221 37	5·64
11	— 0·52	0·30	219 27	19·71	216 51	5·13
16	+ 0·16	0·16	296 21	19·84	212 10	4·58
21	+ 0·88	+ 0·40	344 54	+ 19·96	207 33	— 4·01
26	1·63	0·71	354 11	20·07	203 0	3·40
31	2·40	1·05	357 13	20·17	198 30	2·78
June 5	3·19	1·39	358 20	20·25	194 2	2·13
10	+ 3·99	+ 1·74	358 33	+ 20·31	189 37	— 1·47
15	4·81	2·10	358 20	20·35	185 13	0·80
20	5·64	2·46	357 49	20·36	180 51	— 0·13
25	6·47	2·82	357 9	20·35	176 28	+ 0·54
30	7·29	3·18	356 21	20·32	172 6	1·21
July 5	+ 8·10	+ 3·54	355 29	+ 20·28	167 42	+ 1·88

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

1834.	At Greenwich Mean Midnight.					
	<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>
July 5	+ 8°10'	+ 3°54'	355 29	+20°28'	167 42	+ 1°88'
10	8°90'	3°90'	354 34	20°20'	163 16	2°52'
15	9°68'	4°24'	353 38	20°12'	158 48	3°16'
20	10°44'	4°58'	352 41	20°01'	154 18	3°77'
25	+11°18'	+ 4°92'	351 46	+19°89'	149 44	+ 4°35'
30	11°88'	5°24'	350 52	19°76'	145 6	4°90'
Aug. 4	12°55'	5°55'	350 0	19°62'	140 25	5°43'
9	13°20'	5°85'	349 12	19°49'	135 39	5°91'
14	+13°81'	+ 6°14'	348 27	+19°34'	130 48	+ 6°35'
19	14°39'	6°41'	347 46	19°20'	125 52	6°75'
24	14°94'	6°67'	347 10	19°08'	120 52	7°11'
29	15°46'	6°92'	346 39	18°96'	115 47	7°41'
Sept. 3	+15°96'	+ 7°16'	346 15	+18°86'	110 38	+ 7°66'
8	16°45'	7°38'	345 56	18°78'	105 25	7°86'
13	16°90'	7°60'	345 43	18°72'	100 9	8°00'
18	17°36'	7°80'	345 37	18°69'	94 51	8°08'
23	+17°81'	+ 8°00'	345 38	+18°68'	89 31	+ 8°10'
28	18°25'	8°20'	345 45	18°69'	84 10	8°07'
Oct. 3	18°71'	8°40'	345 58	18°73'	78 49	7°97'
8	19°18'	8°60'	346 17	18°80'	73 29	7°82'
13	+19°65'	+ 8°80'	346 41	+18°88'	68 10	+ 7°61'
18	20°16'	9°01'	347 10	18°99'	62 55	7°34'
23	20°69'	9°22'	347 42	19°12'	57 41	7°01'
28	21°26'	9°45'	348 17	19°25'	52 32	6°63'
Nov. 2	+21°84'	+ 9°70'	348 53	+19°39'	47 26	+ 6°20'
7	22°48'	9°96'	349 29	19°54'	42 23	5°72'
12	23°14'	10°23'	350 5	19°69'	37 25	5°19'
17	23°83'	10°52'	350 38	19°83'	32 30	4°62'
22	+24°57'	+10°83'	351 9	+19°96'	27 40	+ 4°02'
27	25°34'	11°15'	351 36	20°08'	22 52	3°38'
Dec. 2	26°13'	11°49'	351 58	20°18'	18 5	2°72'
7	26°94'	11°84'	352 16	20°26'	13 22	2°03'
12	+27°77'	+12°20'	352 30	+20°32'	8 40	+ 1°33'
17	28°62'	12°57'	352 38	20°35'	3 59	+ 0°61'
22	29°48'	12°94'	352 41	20°36'	359 19	- 0°10'
27	30°32'	13°31'	352 40	20°34'	354 38	0°82'
32	+31°17'	+13°69'	352 35	+20°30'	349 57	- 1°54'

APPARENT PLACES OF α AND δ URSAE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

JANUARY.					FEBRUARY.				
Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.		Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h ^m 1 0	^o ['] 88 25	^h ^m 18 25	^o ['] 86 35		^h ^m 0 59	^o ['] 88 25	^h ^m 18 25	^o ['] 86 34
1	35 ^s 87	39 ["] 47	35 ^s 45	14 ["] 60	1	71 ^s 45	39 ["] 05	37 ^s 99	64 ["] 38
2	35 09	39 55	35 43	14 25	2	70 71	38 93	38 18	64 08
3	34 30	39 63	35 41	13 90	3	69 98	38 81	38 37	63 79
4	33 51	39 69	35 40	13 55	4	69 26	38 69	38 57	63 52
5	32 71	39 76	35 39	13 21	5	68 53	38 56	38 77	63 23
6	31 91	39 82	35 40	12 86	6	67 81	38 42	38 98	62 95
7	31 12	39 87	35 41	12 52	7	67 10	38 27	39 21	62 68
8	30 32	39 91	35 43	12 18	8	66 40	38 12	39 44	62 41
9	29 52	39 96	35 45	11 83	9	65 71	37 97	39 67	62 14
10	28 72	39 99	35 49	11 49	10	65 02	37 81	39 90	61 88
11	27 91	40 01	35 53	11 14	11	64 34	37 64	40 14	61 63
12	27 11	40 02	35 58	10 80	12	63 67	37 47	40 38	61 38
13	26 30	40 04	35 63	10 46	13	63 02	37 29	40 64	61 14
14	25 50	40 05	35 69	10 12	14	62 38	37 12	40 89	60 89
15	24 71	40 05	35 76	9 79	15	61 73	36 93	41 16	60 65
16	23 90	40 04	35 83	9 45	16	61 10	36 73	41 43	60 42
17	23 10	40 03	35 91	9 12	17	60 47	36 53	41 70	60 19
18	22 30	40 01	36 00	8 79	18	59 86	36 33	41 97	59 98
19	21 50	39 98	36 10	8 45	19	59 26	36 12	42 25	59 76
20	20 71	39 95	36 21	8 12	20	58 67	35 91	42 53	59 55
21	19 93	39 90	36 32	7 80	21	58 09	35 69	42 83	59 35
22	19 13	39 86	36 43	7 47	22	57 53	35 47	43 12	59 14
23	18 35	39 81	36 56	7 15	23	56 96	35 25	43 41	58 94
24	17 57	39 75	36 70	6 84	24	56 41	35 02	43 71	58 75
25	16 79	39 68	36 83	6 51	25	55 89	34 78	44 01	58 57
26	16 02	39 61	36 97	6 20	26	55 36	34 55	44 32	58 39
27	15 24	39 54	37 12	5 89	27	54 85	34 31	44 63	58 22
28	14 47	39 45	37 29	5 58	28	54 36	34 06	44 95	58 05
29	13 71	39 36	37 45	5 27	29	53 86	33 81	45 27	57 88
30	12 96	39 26	37 63	4 96					
31	12 20	39 16	37 81	4 66					
32	11 45	39 05	37 99	4 38					

APPARENT PLACES OF α AND δ URSE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

MARCH.					APRIL.				
Days of the Month.	α URSE MINOR.		δ URSE MINOR.		Days of the Month.	α URSE MINOR.		δ URSE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]		^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]
1	53 ^s 86	33 ["] 81	45 ^s 27	57 ["] 88	1	45 ^s 52	24 ["] 85	56 ^s 02	55 ["] 89
2	53 39	33 56	45 60	57 73	2	45 48	24 54	56 36	55 94
3	52 93	33 30	45 92	57 58	3	45 46	24 23	56 71	55 97
4	52 48	33 05	46 25	57 43	4	45 45	23 92	57 06	56 01
5	52 03	32 78	46 58	57 29	5	45 46	23 61	57 41	56 07
6	51 61	32 51	46 92	57 16	6	{ 45 40 45 32 }	{ 23 31 23 00 }	57 75	56 13
7	51 20	32 24	47 25	57 03	7	45 57	22 70	58 09	56 20
8	50 79	31 97	47 59	56 91	8	45 64	22 40	58 44	56 27
9	50 41	31 70	47 93	56 79	9	45 73	22 09	58 77	56 36
10	50 05	31 42	48 27	56 68	10	45 82	21 79	59 11	56 44
11	49 69	31 14	48 61	56 59	11	45 95	21 49	59 45	56 53
12	49 35	30 85	48 96	56 49	12	46 08	21 19	59 78	56 63
13	49 02	30 57	49 31	56 40	13	46 22	20 89	60 11	56 73
14	48 70	30 28	49 66	56 32	14	46 38	20 59	60 44	56 84
15	48 40	29 99	50 00	56 24	15	46 55	20 30	60 76	56 95
16	48 12	29 69	50 35	56 18	16	46 74	20 00	61 08	57 07
17	47 84	29 40	50 71	56 10	17	46 93	19 72	61 40	57 19
18	47 58	29 11	51 06	56 04	18	47 14	19 44	61 71	57 32
19	47 34	28 81	51 41	56 00	19	47 36	19 14	62 03	57 45
20	47 11	28 51	51 77	55 95	20	47 60	18 85	62 34	57 59
21	46 90	28 21	52 12	55 91	21	47 85	18 58	62 65	57 74
22	46 70	27 91	52 47	55 87	22	48 12	18 29	62 95	57 89
23	46 52	27 60	52 83	55 85	23	48 41	18 02	63 25	58 06
24	46 35	27 30	53 19	55 83	24	48 71	17 74	63 53	58 22
25	46 19	26 99	53 54	55 82	25	49 01	17 47	63 83	58 38
26	46 05	26 69	53 90	55 80	26	49 33	17 20	64 12	58 55
27	45 93	26 38	54 25	55 81	27	49 67	16 93	64 41	58 73
28	45 82	26 08	54 61	55 82	28	50 01	16 67	64 68	58 91
29	45 73	25 77	54 96	55 82	29	50 37	16 41	64 95	59 10
30	45 65	25 46	55 31	55 84	30	50 74	16 15	65 23	59 29
31	45 58	25 15	55 66	55 86					
32	45 52	24 85	56 02	55 89	31	51 11	15 90	65 49	59 48

APPARENT PLACES OF α AND δ URSAE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

JANUARY.					FEBRUARY.				
Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.		Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h ^m 1 0	^o ['] 88 25	^h ^m 18 25	^o ['] 86 35		^h ^m 0 59	^o ['] 88 25	^h ^m 18 25	^o ['] 86 35
1	35 87	39 47	35 45	14 60	1	71 45	39 05	37 99	61
2	35 09	39 55	35 43	14 25	2	70 71	38 93	38 18	61
3	34 30	39 63	35 41	13 90	3	69 98	38 81	38 37	61
4	33 51	39 69	35 40	13 55	4	69 26	38 69	38 37	61
5	32 71	39 76	35 39	13 21	5	68 53	38 56	38 77	61
6	31 91	39 82	35 40	12 86	6	67 81	38 42	38 98	61
7	31 12	39 87	35 41	12 52	7	67 10	38 27	39 21	61
8	30 32	39 91	35 43	12 18	8	66 40	38 12	39 44	61
9	29 52	39 96	35 45	11 83	9	65 71	37 97	39 67	61
10	28 72	39 99	35 49	11 49	10	65 02	37 81	39 90	61
11	27 91	40 01	35 53	11 14	11	64 34	37 64	40 14	61
12	27 11	40 02	35 58	10 80	12	63 67	37 47	40 38	61
13	26 30	40 04	35 63	10 46	13	63 02	37 29	40 64	61
14	25 50	40 05	35 69	10 12	14	62 38	37 12	40 89	60
15	24 71	40 05	35 76	9 79	15	61 73	36 93	41 16	60
16	23 90	40 04	35 83	9 45	16	61 10	36 73	41 43	60
17	23 10	40 03	35 91	9 12	17	60 47	36 53	41 70	60
18	22 30	40 01	36 00	8 79	18	59 86	36 33	41 97	59
19	21 50	39 98	36 10	8 45	19	59 26	36 12	42 25	59
20	20 71	39 95	36 21	8 12	20	58 67	35 91	42 53	59
21	19 93	39 90	36 32	7 80	21	58 09	35 69	42 83	59
22	19 13	39 86	36 43	7 47	22	57 53	35 47	43 12	59
23	18 35	39 81	36 56	7 15	23	56 96	35 25	43 41	58
24	17 57	39 75	36 70	6 84	24	56 41	35 02	43 71	58
25	16 79	39 68	36 83	6 51	25	55 89	34 78	44 01	58
26	16 02	39 61	36 97	6 20	26	55 36	34 55	44 32	58
27	15 24	39 54	37 12	5 89	27	54 85	34 31	44 63	58
28	14 47	39 45	37 29	5 58	28	54 36	34 06	44 95	58
29	13 71	39 36	37 45	5 27	29	53 86	33 81	45 27	57
30	12 96	39 26	37 63	4 96					
31	12 20	39 16	37 81	4 66					
32	11 45	39 05	37 99	4 38					

APPARENT PLACES OF α AND δ URSAE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

MARCH.					APRIL.				
Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.		Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]		^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]
1	53 ['] 86 ["]	33 ['] 81 ["]	45 ['] 27 ["]	57 ['] 88 ["]	1	45 ['] 52 ["]	24 ['] 85 ["]	56 ['] 02 ["]	55 ['] 89 ["]
2	53 ['] 39 ["]	33 ['] 56 ["]	45 ['] 60 ["]	57 ['] 73 ["]	2	45 ['] 48 ["]	24 ['] 54 ["]	56 ['] 36 ["]	55 ['] 94 ["]
3	52 ['] 93 ["]	33 ['] 30 ["]	45 ['] 92 ["]	57 ['] 58 ["]	3	45 ['] 46 ["]	24 ['] 23 ["]	56 ['] 71 ["]	55 ['] 97 ["]
4	52 ['] 48 ["]	33 ['] 05 ["]	46 ['] 25 ["]	57 ['] 43 ["]	4	45 ['] 45 ["]	23 ['] 92 ["]	57 ['] 06 ["]	56 ['] 01 ["]
5	52 ['] 03 ["]	32 ['] 78 ["]	46 ['] 58 ["]	57 ['] 29 ["]	5	45 ['] 46 ["]	23 ['] 61 ["]	57 ['] 41 ["]	56 ['] 07 ["]
6	51 ['] 61 ["]	32 ['] 51 ["]	46 ['] 92 ["]	57 ['] 16 ["]	6	{ 45 ['] 40 ["] }	{ 23 ['] 31 ["] }	57 ['] 75 ["]	56 ['] 13 ["]
7	51 ['] 20 ["]	32 ['] 24 ["]	47 ['] 25 ["]	57 ['] 03 ["]	7	45 ['] 57 ["]	22 ['] 70 ["]	58 ['] 09 ["]	56 ['] 20 ["]
8	50 ['] 79 ["]	31 ['] 97 ["]	47 ['] 59 ["]	56 ['] 91 ["]	8	45 ['] 64 ["]	22 ['] 40 ["]	58 ['] 44 ["]	56 ['] 27 ["]
9	50 ['] 41 ["]	31 ['] 70 ["]	47 ['] 93 ["]	56 ['] 79 ["]	9	45 ['] 73 ["]	22 ['] 09 ["]	58 ['] 77 ["]	56 ['] 36 ["]
10	50 ['] 05 ["]	31 ['] 42 ["]	48 ['] 27 ["]	56 ['] 68 ["]	10	45 ['] 82 ["]	21 ['] 79 ["]	59 ['] 11 ["]	56 ['] 44 ["]
11	49 ['] 69 ["]	31 ['] 14 ["]	48 ['] 61 ["]	56 ['] 59 ["]	11	45 ['] 95 ["]	21 ['] 49 ["]	59 ['] 45 ["]	56 ['] 53 ["]
12	49 ['] 35 ["]	30 ['] 85 ["]	48 ['] 96 ["]	56 ['] 49 ["]	12	46 ['] 08 ["]	21 ['] 19 ["]	59 ['] 78 ["]	56 ['] 63 ["]
13	49 ['] 02 ["]	30 ['] 57 ["]	49 ['] 31 ["]	56 ['] 40 ["]	13	46 ['] 22 ["]	20 ['] 89 ["]	60 ['] 11 ["]	56 ['] 73 ["]
14	48 ['] 70 ["]	30 ['] 28 ["]	49 ['] 66 ["]	56 ['] 32 ["]	14	46 ['] 38 ["]	20 ['] 59 ["]	60 ['] 44 ["]	56 ['] 84 ["]
15	48 ['] 40 ["]	29 ['] 99 ["]	50 ['] 00 ["]	56 ['] 24 ["]	15	46 ['] 55 ["]	20 ['] 30 ["]	60 ['] 76 ["]	56 ['] 95 ["]
16	48 ['] 12 ["]	29 ['] 69 ["]	50 ['] 35 ["]	56 ['] 18 ["]	16	46 ['] 74 ["]	20 ['] 00 ["]	61 ['] 08 ["]	57 ['] 07 ["]
17	47 ['] 84 ["]	29 ['] 40 ["]	50 ['] 71 ["]	56 ['] 10 ["]	17	46 ['] 93 ["]	19 ['] 72 ["]	61 ['] 40 ["]	57 ['] 19 ["]
18	47 ['] 58 ["]	29 ['] 11 ["]	51 ['] 06 ["]	56 ['] 04 ["]	18	47 ['] 14 ["]	19 ['] 44 ["]	61 ['] 71 ["]	57 ['] 32 ["]
19	47 ['] 34 ["]	28 ['] 81 ["]	51 ['] 41 ["]	56 ['] 00 ["]	19	47 ['] 36 ["]	19 ['] 14 ["]	62 ['] 03 ["]	57 ['] 45 ["]
20	47 ['] 11 ["]	28 ['] 51 ["]	51 ['] 77 ["]	55 ['] 95 ["]	20	47 ['] 60 ["]	18 ['] 85 ["]	62 ['] 34 ["]	57 ['] 59 ["]
21	46 ['] 90 ["]	28 ['] 21 ["]	52 ['] 12 ["]	55 ['] 91 ["]	21	47 ['] 85 ["]	18 ['] 58 ["]	62 ['] 65 ["]	57 ['] 74 ["]
22	46 ['] 70 ["]	27 ['] 91 ["]	52 ['] 47 ["]	55 ['] 87 ["]	22	48 ['] 12 ["]	18 ['] 29 ["]	62 ['] 95 ["]	57 ['] 89 ["]
23	46 ['] 52 ["]	27 ['] 60 ["]	52 ['] 83 ["]	55 ['] 85 ["]	23	48 ['] 41 ["]	18 ['] 02 ["]	63 ['] 25 ["]	58 ['] 06 ["]
24	46 ['] 35 ["]	27 ['] 30 ["]	53 ['] 19 ["]	55 ['] 83 ["]	24	48 ['] 71 ["]	17 ['] 74 ["]	63 ['] 53 ["]	58 ['] 22 ["]
25	46 ['] 19 ["]	26 ['] 99 ["]	53 ['] 54 ["]	55 ['] 82 ["]	25	49 ['] 01 ["]	17 ['] 47 ["]	63 ['] 83 ["]	58 ['] 38 ["]
26	46 ['] 05 ["]	26 ['] 69 ["]	53 ['] 90 ["]	55 ['] 80 ["]	26	49 ['] 33 ["]	17 ['] 20 ["]	64 ['] 12 ["]	58 ['] 55 ["]
27	45 ['] 93 ["]	26 ['] 38 ["]	54 ['] 25 ["]	55 ['] 81 ["]	27	49 ['] 67 ["]	16 ['] 93 ["]	64 ['] 41 ["]	58 ['] 73 ["]
28	45 ['] 82 ["]	26 ['] 08 ["]	54 ['] 61 ["]	55 ['] 82 ["]	28	50 ['] 01 ["]	16 ['] 67 ["]	64 ['] 68 ["]	58 ['] 91 ["]
29	45 ['] 73 ["]	25 ['] 77 ["]	54 ['] 96 ["]	55 ['] 82 ["]	29	50 ['] 37 ["]	16 ['] 41 ["]	64 ['] 95 ["]	59 ['] 10 ["]
30	45 ['] 65 ["]	25 ['] 46 ["]	55 ['] 31 ["]	55 ['] 84 ["]	30	50 ['] 74 ["]	16 ['] 15 ["]	65 ['] 23 ["]	59 ['] 29 ["]
31	45 ['] 58 ["]	25 ['] 15 ["]	55 ['] 66 ["]	55 ['] 86 ["]	31	51 ['] 11 ["]	15 ['] 90 ["]	65 ['] 49 ["]	59 ['] 48 ["]
32	45 ['] 52 ["]	24 ['] 85 ["]	56 ['] 02 ["]	55 ['] 89 ["]					

APPARENT PLACES OF α AND δ URSE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

MAY.					JUNE.				
Days of the Month.	α URSE MINOR.		δ URSE MINOR.		Days of the Month.	α URSE MINOR.		δ URSE MI	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	D
	^h 0 ^m 59	^o 88 ['] 25	^h 18 ^m 26	^o 86 ['] 34		^h 1 ^m 0	^o 88 ['] 25	^h 18 ^m 26	8
1	^s 51 ["] 11	15 ["] 90	^s 5 ["] 49	59 ["] 48	1	^s 8 ["] 20	10 ["] 09	^s 11 ["] 20	
2	51 ["] 51	15 ["] 65	5 ["] 76	59 ["] 69	2	8 ["] 88	9 ["] 99	11 ["] 29	
3	51 ["] 92	15 ["] 41	6 ["] 01	59 ["] 89	3	9 ["] 57	9 ["] 88	11 ["] 38	
4	52 ["] 33	15 ["] 16	6 ["] 26	60 ["] 10	4	10 ["] 26	9 ["] 77	11 ["] 46	
5	52 ["] 77	14 ["] 93	6 ["] 51	60 ["] 32	5	10 ["] 97	9 ["] 68	11 ["] 53	
6	53 ["] 21	14 ["] 69	6 ["] 76	60 ["] 53	6	11 ["] 68	9 ["] 59	11 ["] 59	
7	53 ["] 67	14 ["] 46	7 ["] 00	60 ["] 75	7	12 ["] 38	9 ["] 51	11 ["] 63	
8	54 ["] 13	14 ["] 22	7 ["] 24	60 ["] 98	8	13 ["] 10	9 ["] 43	11 ["] 71	
9	54 ["] 62	13 ["] 99	7 ["] 46	61 ["] 21	9	13 ["] 82	9 ["] 35	11 ["] 75	
10	55 ["] 10	13 ["] 78	7 ["] 68	61 ["] 44	10	14 ["] 54	9 ["] 29	11 ["] 80	10
11	55 ["] 60	13 ["] 56	7 ["] 90	61 ["] 68	11	15 ["] 28	9 ["] 23	11 ["] 83	10
12	56 ["] 10	13 ["] 36	8 ["] 11	61 ["] 92	12	16 ["] 02	9 ["] 17	11 ["] 86	10
13	56 ["] 63	13 ["] 14	8 ["] 32	62 ["] 17	13	16 ["] 76	9 ["] 12	11 ["] 89	11
14	57 ["] 16	12 ["] 94	8 ["] 53	62 ["] 41	14	17 ["] 50	9 ["] 07	11 ["] 90	11
15	57 ["] 69	12 ["] 73	8 ["] 73	62 ["] 66	15	18 ["] 25	9 ["] 03	11 ["] 91	11
16	58 ["] 25	12 ["] 55	8 ["] 91	62 ["] 92	16	18 ["] 99	8 ["] 99	11 ["] 91	11
17	58 ["] 81	12 ["] 36	9 ["] 10	63 ["] 18	17	19 ["] 74	8 ["] 96	11 ["] 91	11
18	59 ["] 37	12 ["] 18	9 ["] 28	63 ["] 44	18	20 ["] 50	8 ["] 94	11 ["] 91	11
19	59 ["] 94	12 ["] 00	9 ["] 46	63 ["] 70	19	21 ["] 26	8 ["] 92	11 ["] 89	11
20	60 ["] 53	11 ["] 82	9 ["] 62	63 ["] 97	20	22 ["] 02	8 ["] 92	11 ["] 87	11
21	61 ["] 13	11 ["] 65	9 ["] 79	64 ["] 24	21	22 ["] 79	8 ["] 91	11 ["] 84	11
22	61 ["] 74	11 ["] 48	9 ["] 94	64 ["] 52	22	23 ["] 55	8 ["] 91	11 ["] 81	11
23	62 ["] 35	11 ["] 32	10 ["] 09	64 ["] 79	23	24 ["] 31	8 ["] 91	11 ["] 77	11
24	62 ["] 98	11 ["] 16	10 ["] 24	65 ["] 07	24	25 ["] 08	8 ["] 92	11 ["] 72	11
25	63 ["] 62	11 ["] 01	10 ["] 38	65 ["] 35	25	25 ["] 86	8 ["] 94	11 ["] 66	11
26	64 ["] 25	10 ["] 86	10 ["] 52	65 ["] 64	26	26 ["] 63	8 ["] 96	11 ["] 60	11
27	64 ["] 89	10 ["] 72	10 ["] 65	65 ["] 92	27	27 ["] 40	8 ["] 99	11 ["] 54	11
28	65 ["] 53	10 ["] 59	10 ["] 77	66 ["] 21	28	28 ["] 18	9 ["] 01	11 ["] 46	11
29	66 ["] 19	10 ["] 46	10 ["] 89	66 ["] 50	29	28 ["] 94	9 ["] 05	11 ["] 39	11
30	66 ["] 85	10 ["] 32	10 ["] 99	66 ["] 79	30	29 ["] 72	9 ["] 09	11 ["] 31	11
31	67 ["] 53	10 ["] 21	11 ["] 10	67 ["] 09	31	30 ["] 49	9 ["] 15	11 ["] 23	11
32	68 ["] 20	10 ["] 09	11 ["] 20	67 ["] 39					

APPARENT PLACES OF α AND δ URSE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

MARCH.					APRIL.				
Days of the Month.	α URSE MINOR.		δ URSE MINOR.		Days of the Month.	α URSE MINOR.		δ URSE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]		^h 0 ^m 59 ^s	[°] 88 ['] 25 ["]	^h 18 ^m 25 ^s	[°] 86 ['] 34 ["]
1	53 ^s 86	33 ['] 81	45 ^s 27	57 ['] 88	1	45 ^s 52	24 ['] 85	56 ^s 02	55 ['] 89
2	53 ^s 39	33 ['] 56	45 ^s 60	57 ['] 73	2	45 ^s 48	24 ['] 54	56 ^s 36	55 ['] 94
3	52 ^s 93	33 ['] 30	45 ^s 92	57 ['] 58	3	45 ^s 46	24 ['] 23	56 ^s 71	55 ['] 97
4	52 ^s 48	33 ['] 05	46 ^s 25	57 ['] 43	4	45 ^s 45	23 ['] 92	57 ^s 06	56 ['] 01
5	52 ^s 03	32 ['] 78	46 ^s 58	57 ['] 29	5	45 ^s 46	23 ['] 61	57 ^s 41	56 ['] 07
6	51 ^s 61	32 ['] 51	46 ^s 92	57 ['] 16	6	{ 45 ^s 40 }	{ 23 ['] 31 }	57 ^s 75	56 ['] 13
7	51 ^s 20	32 ['] 24	47 ^s 25	57 ['] 03	7	45 ^s 57	22 ['] 70	58 ^s 09	56 ['] 20
8	50 ^s 79	31 ['] 97	47 ^s 59	56 ['] 91	8	45 ^s 64	22 ['] 40	58 ^s 44	56 ['] 27
9	50 ^s 41	31 ['] 70	47 ^s 93	56 ['] 79	9	45 ^s 73	22 ['] 09	58 ^s 77	56 ['] 36
10	50 ^s 05	31 ['] 42	48 ^s 27	56 ['] 68	10	45 ^s 82	21 ['] 79	59 ^s 11	56 ['] 44
11	49 ^s 69	31 ['] 14	48 ^s 61	56 ['] 59	11	45 ^s 95	21 ['] 49	59 ^s 45	56 ['] 53
12	49 ^s 35	30 ['] 85	48 ^s 96	56 ['] 49	12	46 ^s 08	21 ['] 19	59 ^s 78	56 ['] 63
13	49 ^s 02	30 ['] 57	49 ^s 31	56 ['] 40	13	46 ^s 22	20 ['] 89	60 ^s 11	56 ['] 73
14	48 ^s 70	30 ['] 28	49 ^s 66	56 ['] 32	14	46 ^s 38	20 ['] 59	60 ^s 44	56 ['] 84
15	48 ^s 40	29 ['] 99	50 ^s 00	56 ['] 24	15	46 ^s 55	20 ['] 30	60 ^s 76	56 ['] 95
16	48 ^s 12	29 ['] 69	50 ^s 35	56 ['] 18	16	46 ^s 74	20 ['] 00	61 ^s 08	57 ['] 07
17	47 ^s 84	29 ['] 40	50 ^s 71	56 ['] 10	17	46 ^s 93	19 ['] 72	61 ^s 40	57 ['] 19
18	47 ^s 58	29 ['] 11	51 ^s 06	56 ['] 04	18	47 ^s 14	19 ['] 44	61 ^s 71	57 ['] 32
19	47 ^s 34	28 ['] 81	51 ^s 41	56 ['] 00	19	47 ^s 36	19 ['] 14	62 ^s 03	57 ['] 45
20	47 ^s 11	28 ['] 51	51 ^s 77	55 ['] 95	20	47 ^s 60	18 ['] 85	62 ^s 34	57 ['] 59
21	46 ^s 90	28 ['] 21	52 ^s 12	55 ['] 91	21	47 ^s 85	18 ['] 58	62 ^s 65	57 ['] 74
22	46 ^s 70	27 ['] 91	52 ^s 47	55 ['] 87	22	48 ^s 12	18 ['] 29	62 ^s 95	57 ['] 89
23	46 ^s 52	27 ['] 60	52 ^s 83	55 ['] 85	23	48 ^s 41	18 ['] 02	63 ^s 25	58 ['] 06
24	46 ^s 35	27 ['] 30	53 ^s 19	55 ['] 83	24	48 ^s 71	17 ['] 74	63 ^s 53	58 ['] 22
25	46 ^s 19	26 ['] 99	53 ^s 54	55 ['] 82	25	49 ^s 01	17 ['] 47	63 ^s 83	58 ['] 38
26	46 ^s 05	26 ['] 69	53 ^s 90	55 ['] 80	26	49 ^s 33	17 ['] 20	64 ^s 12	58 ['] 55
27	45 ^s 93	26 ['] 38	54 ^s 25	55 ['] 81	27	49 ^s 67	16 ['] 93	64 ^s 41	58 ['] 73
28	45 ^s 82	26 ['] 08	54 ^s 61	55 ['] 82	28	50 ^s 01	16 ['] 67	64 ^s 68	58 ['] 91
29	45 ^s 73	25 ['] 77	54 ^s 96	55 ['] 82	29	50 ^s 37	16 ['] 41	64 ^s 95	59 ['] 10
30	45 ^s 65	25 ['] 46	55 ^s 31	55 ['] 84	30	50 ^s 74	16 ['] 15	65 ^s 23	59 ['] 29
31	45 ^s 58	25 ['] 15	55 ^s 66	55 ['] 86	31	51 ^s 11	15 ['] 90	65 ^s 49	59 ['] 48
32	45 ^s 52	24 ['] 85	56 ^s 02	55 ['] 89					

APPARENT PLACES OF α AND δ URSÆ MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

MAY.					JUNE.				
Days of the Month.	α URSÆ MINOR.		δ URSÆ MINOR.		Days of the Month.	α URSÆ MINOR.		δ URSÆ MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 0 ^m 59	^o 88 ['] 25	^h 18 ^m 26	^o 86 ['] 34		^h 1 ^m 0	^o 88 ['] 25	^h 18 ^m 26	^o 86 ['] 35
	^s 11	["]	^s 49	["]		^s 20	["]	^s	["]
1	51·11	15·90	5·49	59·48	1	8·20	10·09	11·20	7·39
2	51·51	15·65	5·76	59·69	2	8·88	9·99	11·29	7·68
3	51·92	15·41	6·01	59·89	3	9·57	9·88	11·38	7·99
4	52·33	15·16	6·26	60·10	4	10·26	9·77	11·46	8·29
5	52·77	14·93	6·51	60·32	5	10·97	9·68	11·53	8·59
6	53·21	14·69	6·76	60·53	6	11·68	9·59	11·59	8·90
7	53·67	14·46	7·00	60·75	7	12·38	9·51	11·65	9·20
8	54·13	14·22	7·24	60·98	8	13·10	9·43	11·71	9·51
9	54·62	13·99	7·46	61·21	9	13·82	9·35	11·75	9·82
10	55·10	13·78	7·68	61·44	10	14·54	9·29	11·80	10·13
11	55·60	13·56	7·90	61·68	11	15·28	9·23	11·83	10·44
12	56·10	13·36	8·11	61·92	12	16·02	9·17	11·86	10·75
13	56·63	13·14	8·32	62·17	13	16·76	9·12	11·89	11·06
14	57·16	12·94	8·53	62·41	14	17·50	9·07	11·90	11·37
15	57·69	12·73	8·73	62·66	15	18·25	9·03	11·91	11·69
16	58·25	12·55	8·91	62·92	16	18·99	8·99	11·91	12·00
17	58·81	12·36	9·10	63·18	17	19·74	8·96	11·91	12·31
18	59·37	12·18	9·28	63·44	18	20·50	8·94	11·91	12·63
19	59·94	12·00	9·46	63·70	19	21·26	8·92	11·89	12·94
20	60·53	11·82	9·62	63·97	20	22·02	8·92	11·87	13·26
21	61·13	11·65	9·79	64·24	21	22·79	8·91	11·84	13·57
22	61·74	11·48	9·94	64·52	22	23·55	8·91	11·81	13·89
23	62·35	11·32	10·09	64·79	23	24·31	8·91	11·77	14·20
24	62·98	11·16	10·24	65·07	24	25·08	8·92	11·72	14·51
25	63·62	11·01	10·38	65·35	25	25·86	8·94	11·66	14·83
26	64·25	10·86	10·52	65·64	26	26·63	8·96	11·60	15·14
27	64·89	10·72	10·65	65·92	27	27·40	8·99	11·54	15·46
28	65·53	10·59	10·77	66·21	28	28·18	9·01	11·46	15·77
29	66·19	10·46	10·89	66·50	29	28·94	9·05	11·39	16·08
30	66·85	10·32	10·99	66·79	30	29·72	9·09	11·31	16·40
31	67·53	10·21	11·10	67·09	31	30·49	9·15	11·23	16·71
32	68·20	10·09	11·20	67·39					

APPARENT PLACES OF α AND δ URSE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

JULY.					AUGUST.				
Days of the Month.	α URSE MINOR.		δ URSE MINOR.		Days of the Month.	α URSE MINOR.		δ URSE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 1 ^m 0	^o 88 ['] 25	^h 18 ^m 26	^o 86 ['] 35		^h 1 ^m 0	^o 88 ['] 25	^h 18 ^m 25	^o 86 ['] 35
	^s	["]	^s	["]		^s	["]	^s	["]
1	30 [.] 49	9 [.] 15	11 [.] 23	16 [.] 71	1	53 [.] 57	13 [.] 29	65 [.] 52	25 [.] 57
2	31 [.] 25	9 [.] 19	11 [.] 12	17 [.] 02	2	54 [.] 24	13 [.] 50	65 [.] 25	25 [.] 84
3	32 [.] 04	9 [.] 26	11 [.] 02	17 [.] 33	3	54 [.] 92	13 [.] 71	64 [.] 98	26 [.] 07
4	32 [.] 82	9 [.] 33	10 [.] 91	17 [.] 64	4	55 [.] 60	13 [.] 94	64 [.] 70	26 [.] 32
5	33 [.] 58	9 [.] 40	10 [.] 80	17 [.] 95	5	56 [.] 27	14 [.] 18	64 [.] 41	26 [.] 55
6	34 [.] 36	9 [.] 47	10 [.] 68	18 [.] 26	6	56 [.] 93	14 [.] 40	64 [.] 12	26 [.] 79
7	35 [.] 14	9 [.] 55	10 [.] 56	18 [.] 56	7	57 [.] 57	14 [.] 64	63 [.] 82	27 [.] 03
8	35 [.] 91	9 [.] 64	10 [.] 42	18 [.] 87	8	58 [.] 23	14 [.] 87	63 [.] 54	27 [.] 26
9	36 [.] 67	9 [.] 74	10 [.] 28	19 [.] 17	9	58 [.] 87	15 [.] 12	63 [.] 23	27 [.] 49
10	37 [.] 44	9 [.] 84	10 [.] 13	19 [.] 47	10	59 [.] 50	15 [.] 37	62 [.] 92	27 [.] 71
11	38 [.] 21	9 [.] 93	9 [.] 98	19 [.] 77	11	60 [.] 13	15 [.] 62	62 [.] 61	27 [.] 92
12	38 [.] 97	10 [.] 05	9 [.] 83	20 [.] 07	12	60 [.] 75	15 [.] 87	62 [.] 29	28 [.] 14
13	39 [.] 73	10 [.] 17	9 [.] 65	20 [.] 37	13	61 [.] 38	16 [.] 13	61 [.] 97	28 [.] 36
14	40 [.] 49	10 [.] 27	9 [.] 49	20 [.] 66	14	61 [.] 99	16 [.] 41	61 [.] 65	28 [.] 56
15	41 [.] 24	10 [.] 40	9 [.] 32	20 [.] 95	15	62 [.] 58	16 [.] 67	61 [.] 32	28 [.] 77
16	41 [.] 99	10 [.] 52	9 [.] 14	21 [.] 24	16	63 [.] 18	16 [.] 94	60 [.] 99	28 [.] 98
17	42 [.] 75	10 [.] 68	8 [.] 95	21 [.] 53	17	63 [.] 77	17 [.] 22	60 [.] 66	29 [.] 17
18	43 [.] 50	10 [.] 80	8 [.] 76	21 [.] 82	18	64 [.] 33	17 [.] 50	60 [.] 31	29 [.] 36
19	44 [.] 24	10 [.] 95	8 [.] 56	22 [.] 10	19	64 [.] 91	17 [.] 78	59 [.] 97	29 [.] 55
20	44 [.] 98	11 [.] 09	8 [.] 36	22 [.] 38	20	65 [.] 47	18 [.] 07	59 [.] 62	29 [.] 75
21	45 [.] 72	11 [.] 26	8 [.] 15	22 [.] 66	21	66 [.] 02	18 [.] 36	59 [.] 27	29 [.] 93
22	46 [.] 44	11 [.] 42	7 [.] 95	22 [.] 94	22	66 [.] 57	18 [.] 65	58 [.] 92	30 [.] 10
23	47 [.] 18	11 [.] 59	7 [.] 73	23 [.] 22	23	67 [.] 10	18 [.] 96	58 [.] 56	30 [.] 29
24	47 [.] 91	11 [.] 76	7 [.] 50	23 [.] 49	24	67 [.] 64	19 [.] 26	58 [.] 21	30 [.] 44
25	48 [.] 64	11 [.] 92	7 [.] 28	23 [.] 76	25	68 [.] 15	19 [.] 56	57 [.] 84	30 [.] 61
26	49 [.] 34	12 [.] 10	7 [.] 03	24 [.] 03	26	68 [.] 66	19 [.] 87	57 [.] 47	30 [.] 77
27	50 [.] 05	12 [.] 30	6 [.] 79	24 [.] 30	27	69 [.] 17	20 [.] 18	57 [.] 10	30 [.] 94
28	50 [.] 77	12 [.] 48	6 [.] 54	24 [.] 56	28	69 [.] 66	20 [.] 49	56 [.] 73	31 [.] 11
29	51 [.] 47	12 [.] 68	6 [.] 30	24 [.] 82	29	70 [.] 15	20 [.] 81	56 [.] 35	31 [.] 24
30	52 [.] 18	12 [.] 88	6 [.] 04	25 [.] 07	30	70 [.] 62	21 [.] 13	55 [.] 97	31 [.] 40
31	52 [.] 87	13 [.] 08	5 [.] 78	25 [.] 34	31	71 [.] 10	21 [.] 46	55 [.] 60	31 [.] 53
32	53 [.] 57	13 [.] 29	5 [.] 52	25 [.] 57	32	71 [.] 55	21 [.] 78	55 [.] 21	31 [.] 68

APPARENT PLACES OF α AND β URSE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

SEPTEMBER.					OCTOBER.				
Days of the Month.	α URSE MINOR.		β URSE MINOR.		Days of the Month.	α URSE MINOR.		β URSE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h ^m	[°] [']	^h ^m	[°] [']		^h ^m	[°] [']	^h ^m	[°] [']
1	11 ^h 55 ^m	21 [°] 78 [']	55 ^h 21 ^m	31 [°] 68 [']	1	20 ^h 57 ^m	32 [°] 62 [']	42 ^h 78 ^m	33 [°]
2	11 ^h 59 ^m	22 [°] 11 [']	54 ^h 82 ^m	31 [°] 81 [']	2	20 ^h 71 ^m	33 [°] 01 [']	42 ^h 35 ^m	33 [°]
3	12 ^h 43 ^m	22 [°] 45 [']	54 ^h 44 ^m	31 [°] 94 [']	3	20 ^h 82 ^m	33 [°] 39 [']	41 ^h 52 ^m	33 [°]
4	12 ^h 87 ^m	22 [°] 78 [']	54 ^h 04 ^m	32 [°] 07 [']	4	20 ^h 92 ^m	33 [°] 78 [']	41 ^h 50 ^m	33 [°]
5	13 ^h 28 ^m	23 [°] 12 [']	53 ^h 64 ^m	32 [°] 18 [']	5	21 ^h 03 ^m	34 [°] 17 [']	41 ^h 07 ^m	33 [°]
6	13 ^h 70 ^m	23 [°] 46 [']	53 ^h 24 ^m	32 [°] 30 [']	6	21 ^h 11 ^m	34 [°] 55 [']	40 ^h 64 ^m	33 [°]
7	14 ^h 10 ^m	23 [°] 81 [']	52 ^h 84 ^m	32 [°] 42 [']	7	21 ^h 18 ^m	34 [°] 94 [']	40 ^h 21 ^m	33 [°]
8	14 ^h 48 ^m	24 [°] 15 [']	52 ^h 44 ^m	32 [°] 52 [']	8	21 ^h 24 ^m	35 [°] 33 [']	39 ^h 79 ^m	33 [°]
9	14 ^h 87 ^m	24 [°] 50 [']	52 ^h 04 ^m	32 [°] 61 [']	9	21 ^h 29 ^m	35 [°] 72 [']	39 ^h 36 ^m	33 [°]
10	15 ^h 24 ^m	24 [°] 85 [']	51 ^h 63 ^m	32 [°] 72 [']	10	21 ^h 31 ^m	36 [°] 10 [']	38 ^h 94 ^m	33 [°]
11	15 ^h 59 ^m	25 [°] 20 [']	51 ^h 23 ^m	32 [°] 81 [']	11	21 ^h 34 ^m	36 [°] 48 [']	38 ^h 51 ^m	33 [°]
12	15 ^h 94 ^m	25 [°] 56 [']	50 ^h 81 ^m	32 [°] 89 [']	12	21 ^h 35 ^m	36 [°] 87 [']	38 ^h 09 ^m	33 [°]
13	16 ^h 29 ^m	25 [°] 92 [']	50 ^h 40 ^m	32 [°] 98 [']	13	21 ^h 35 ^m	37 [°] 26 [']	37 ^h 67 ^m	33 [°]
14	16 ^h 62 ^m	26 [°] 27 [']	49 ^h 99 ^m	33 [°] 06 [']	14	21 ^h 33 ^m	37 [°] 64 [']	37 ^h 25 ^m	33 [°]
15	16 ^h 94 ^m	26 [°] 64 [']	49 ^h 57 ^m	33 [°] 12 [']	15	21 ^h 31 ^m	38 [°] 03 [']	36 ^h 83 ^m	33 [°]
16	17 ^h 23 ^m	27 [°] 00 [']	49 ^h 16 ^m	33 [°] 20 [']	16	21 ^h 27 ^m	38 [°] 42 [']	36 ^h 41 ^m	33 [°]
17	17 ^h 54 ^m	27 [°] 37 [']	48 ^h 74 ^m	33 [°] 27 [']	17	21 ^h 22 ^m	38 [°] 80 [']	35 ^h 99 ^m	33 [°]
18	17 ^h 83 ^m	27 [°] 73 [']	48 ^h 31 ^m	33 [°] 33 [']	18	21 ^h 16 ^m	39 [°] 19 [']	35 ^h 58 ^m	33 [°]
19	18 ^h 11 ^m	28 [°] 10 [']	47 ^h 89 ^m	33 [°] 38 [']	19	21 ^h 09 ^m	39 [°] 57 [']	35 ^h 16 ^m	33 [°]
20	18 ^h 38 ^m	28 [°] 47 [']	47 ^h 47 ^m	33 [°] 43 [']	20	21 ^h 00 ^m	39 [°] 95 [']	34 ^h 74 ^m	33 [°]
21	18 ^h 63 ^m	28 [°] 84 [']	47 ^h 05 ^m	33 [°] 48 [']	21	20 ^h 89 ^m	40 [°] 33 [']	34 ^h 34 ^m	33 [°]
22	18 ^h 88 ^m	29 [°] 21 [']	46 ^h 63 ^m	33 [°] 53 [']	22	20 ^h 77 ^m	40 [°] 71 [']	33 ^h 93 ^m	33 [°]
23	19 ^h 11 ^m	29 [°] 58 [']	46 ^h 20 ^m	33 [°] 56 [']	23	20 ^h 67 ^m	41 [°] 09 [']	33 ^h 51 ^m	33 [°]
24	19 ^h 34 ^m	29 [°] 96 [']	45 ^h 78 ^m	33 [°] 60 [']	24	20 ^h 54 ^m	41 [°] 47 [']	33 ^h 11 ^m	33 [°]
25	19 ^h 54 ^m	30 [°] 34 [']	45 ^h 35 ^m	33 [°] 62 [']	25	20 ^h 38 ^m	41 [°] 85 [']	32 ^h 71 ^m	33 [°]
26	19 ^h 74 ^m	30 [°] 72 [']	44 ^h 92 ^m	33 [°] 63 [']	26	20 ^h 22 ^m	42 [°] 23 [']	32 ^h 31 ^m	31 [°]
27	19 ^h 92 ^m	31 [°] 10 [']	44 ^h 50 ^m	33 [°] 65 [']	27	20 ^h 05 ^m	42 [°] 61 [']	31 ^h 91 ^m	31 [°]
28	20 ^h 10 ^m	31 [°] 48 [']	44 ^h 07 ^m	33 [°] 67 [']	28	19 ^h 86 ^m	42 [°] 97 [']	31 ^h 51 ^m	31 [°]
29	20 ^h 26 ^m	31 [°] 87 [']	43 ^h 64 ^m	33 [°] 67 [']	29	19 ^h 67 ^m	43 [°] 36 [']	31 ^h 12 ^m	31 [°]
30	20 ^h 41 ^m	32 [°] 24 [']	43 ^h 21 ^m	33 [°] 67 [']	30	19 ^h 46 ^m	43 [°] 71 [']	30 ^h 74 ^m	31 [°]
31	20 ^h 57 ^m	32 [°] 62 [']	42 ^h 78 ^m	33 [°] 67 [']	31	19 ^h 23 ^m	44 [°] 08 [']	30 ^h 35 ^m	31 [°]
					32	19 ^h 02 ^m	44 [°] 45 [']	29 ^h 97 ^m	31 [°]

APPARENT PLACES OF α AND δ URSAE MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

NOVEMBER.					DECEMBER.				
Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.		Days of the Month.	α URSAE MINOR.		δ URSAE MINOR.	
	R. A.	Dec. N.	R. A.	Dec. N.		R. A.	Dec. N.	R. A.	Dec. N.
	^h 1 ^m 1	^s 88 [°] 25	^h 18 ^m 25	^s 86 [°] 35		^h 1 0 ^m 1	^s 88 [°] 25	^h 18 ^m 25	^s 86 [°] 35
1	19 ^s 02	44 ["] 45	29 ^s 97	31 ["] 06	1	66 ^s 60	54 ["] 13	20 ^s 31	24 ["] 25
2	18 79	44 82	29 60	30 91	2	66 03	54 39	20 05	23 95
3	18 53	45 18	29 21	30 74	3	65 43	54 65	19 81	23 67
4	18 24	45 54	28 83	30 57	4	64 82	54 90	19 58	23 37
5	17 96	45 90	28 46	30 38	5	64 21	55 15	19 36	23 07
6	17 67	46 25	28 10	30 21	6	63 60	55 39	19 13	22 78
7	17 36	46 61	27 73	30 02	7	62 97	55 63	18 92	22 47
8	17 05	46 97	27 37	29 83	8	62 33	55 86	18 72	22 16
9	16 73	47 31	27 02	29 63	9	61 69	56 09	18 52	21 85
10	16 38	47 64	26 68	29 43	10	61 03	56 32	18 31	21 54
11	16 02	47 99	26 31	29 22	11	60 38	56 54	18 12	21 22
12	15 65	48 33	25 97	29 02	12	59 72	56 75	17 96	20 91
13	15 29	48 66	25 63	28 81	13	59 03	56 96	17 73	20 59
14	14 90	49 00	25 29	28 58	14	58 33	57 16	17 58	20 26
15	14 49	49 33	24 96	28 36	15	57 65	57 35	17 43	19 94
16	14 08	49 66	24 63	28 13	16	56 96	57 55	17 28	19 62
17	13 65	49 98	24 30	27 90	17	56 25	57 73	17 13	19 29
18	13 22	50 30	23 98	27 66	18	55 53	57 92	16 99	18 96
19	12 78	50 62	23 67	27 43	19	54 82	58 09	16 85	18 63
20	12 32	50 93	23 37	27 19	20	54 09	58 26	16 72	18 29
21	11 86	51 24	23 07	26 94	21	53 37	58 42	16 58	17 95
22	11 37	51 55	22 77	26 70	22	52 63	58 58	16 47	17 63
23	10 89	51 85	22 47	26 44	23	51 88	58 73	16 36	17 29
24	10 39	52 15	22 17	26 17	24	51 13	58 87	16 26	16 95
25	9 88	52 44	21 89	25 91	25	50 38	59 00	16 18	16 60
26	9 35	52 73	21 62	25 64	26	49 62	59 14	16 10	16 26
27	8 83	53 02	21 36	25 38	27	48 85	59 26	{ 16 01 }	{ 15 23 }
								{ 15 54 }	{ 15 30 }
28	8 28	53 30	21 08	25 10	28	48 08	59 39	15 88	15 23
29	7 71	53 58	20 81	24 81	29	47 30	59 50	15 82	14 88
30	7 15	53 85	20 57	24 53	30	46 52	59 61	15 77	14 54
31	6 60	54 13	20 31	24 25	31	45 74	59 71	15 73	14 19

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	γ PEGASI.		β Hydri.		α CASSIOPEÆ.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 0 ^m 4	[°] 14 ['] 15	^h 0 ^m 16	[°] 78 ['] 11	^h 0 ^m 31	[°] 55 ['] 37
Jan. 1	40° 63' 0" 12	35° 14' 0" 12	47° 58' 0" 12	51° 12' 0" 12	6° 86' 0" 12	41° 76' 0" 12
11	40° 51' 0" 12	34° 27' 0" 12	46° 67' 0" 12	49° 96' 0" 12	6° 56' 0" 12	41° 23' 0" 12
21	40° 40' 0" 12	33° 30' 0" 12	45° 83' 0" 12	48° 21' 0" 12	6° 28' 0" 12	40° 21' 0" 12
31	40° 30' 0" 12	32° 27' 0" 12	45° 08' 0" 12	45° 95' 0" 12	6° 01' 0" 12	38° 75' 0" 12
Feb. 10	40° 22' 0" 12	31° 23' 0" 12	44° 44' 0" 12	43° 22' 0" 12	5° 76' 0" 12	36° 88' 0" 12
20	40° 16' 0" 12	30° 23' 0" 12	43° 92' 0" 12	40° 11' 0" 12	5° 56' 0" 12	34° 71' 0" 12
Mar. 2	40° 13' 0" 12	29° 32' 0" 12	43° 55' 0" 12	36° 69' 0" 12	5° 40' 0" 12	32° 32' 0" 12
12	40° 13' 0" 12	28° 55' 0" 12	43° 33' 0" 12	33° 05' 0" 12	5° 31' 0" 12	29° 82' 0" 12
22	40° 17' 0" 12	27° 98' 0" 12	43° 26' 0" 12	29° 27' 0" 12	5° 28' 0" 12	27° 31' 0" 12
April 1	40° 25' 0" 12	27° 64' 0" 12	43° 38' 0" 12	25° 06' 0" 12	5° 34' 0" 12	24° 67' 0" 12
11	40° 38' 0" 12	27° 62' 0" 12	43° 66' 0" 12	21° 26' 0" 12	5° 46' 0" 12	22° 48' 0" 12
21	40° 54' 0" 12	27° 91' 0" 12	44° 09' 0" 12	17° 57' 0" 12	5° 66' 0" 12	20° 59' 0" 12
May 1	40° 75' 0" 12	28° 51' 0" 12	44° 67' 0" 12	14° 09' 0" 12	5° 93' 0" 12	19° 07' 0" 12
11	40° 99' 0" 12	29° 43' 0" 12	45° 40' 0" 12	10° 86' 0" 12	6° 26' 0" 12	17° 98' 0" 12
21	41° 26' 0" 12	30° 65' 0" 12	46° 25' 0" 12	7° 98' 0" 12	6° 64' 0" 12	17° 36' 0" 12
31	41° 55' 0" 12	32° 14' 0" 12	47° 20' 0" 12	5° 50' 0" 12	7° 07' 0" 12	17° 24' 0" 12
June 10	41° 86' 0" 12	33° 87' 0" 12	48° 25' 0" 12	3° 48' 0" 12	7° 52' 0" 12	17° 61' 0" 12
20	42° 18' 0" 12	35° 79' 0" 12	49° 35' 0" 12	1° 95' 0" 12	7° 99' 0" 12	18° 49' 0" 12
30	42° 50' 0" 12	37° 85' 0" 12	50° 49' 0" 12	0° 97' 0" 12	8° 46' 0" 12	19° 82' 0" 12
July 10	42° 82' 0" 12	40° 00' 0" 12	51° 64' 0" 12	0° 55' 0" 12	8° 93' 0" 12	21° 59' 0" 12
20	43° 11' 0" 12	42° 18' 0" 12	52° 75' 0" 12	0° 71' 0" 12	9° 37' 0" 12	23° 74' 0" 12
30	43° 39' 0" 12	44° 34' 0" 12	53° 80' 0" 12	1° 43' 0" 12	9° 79' 0" 12	26° 24' 0" 12
Aug. 9	43° 63' 0" 12	46° 44' 0" 12	54° 77' 0" 12	2° 70' 0" 12	10° 16' 0" 12	29° 01' 0" 12
19	43° 84' 0" 12	48° 43' 0" 12	55° 61' 0" 12	4° 46' 0" 12	10° 49' 0" 12	32° 00' 0" 12
29	44° 02' 0" 12	50° 26' 0" 12	56° 31' 0" 12	6° 67' 0" 12	10° 77' 0" 12	35° 15' 0" 12
Sept. 8	44° 15' 0" 12	51° 91' 0" 12	56° 83' 0" 12	9° 23' 0" 12	10° 99' 0" 12	38° 39' 0" 12
18	44° 25' 0" 12	53° 37' 0" 12	57° 18' 0" 12	12° 07' 0" 12	11° 16' 0" 12	41° 66' 0" 12
28	44° 32' 0" 12	54° 60' 0" 12	57° 33' 0" 12	15° 07' 0" 12	11° 27' 0" 12	44° 88' 0" 12
Oct. 8	44° 34' 0" 12	55° 60' 0" 12	57° 28' 0" 12	18° 12' 0" 12	11° 32' 0" 12	48° 02' 0" 12
18	44° 34' 0" 12	56° 38' 0" 12	57° 04' 0" 12	21° 09' 0" 12	11° 32' 0" 12	50° 98' 0" 12
28	44° 30' 0" 12	56° 94' 0" 12	56° 62' 0" 12	23° 87' 0" 12	11° 26' 0" 12	53° 72' 0" 12
Nov. 7	44° 24' 0" 12	57° 26' 0" 12	56° 04' 0" 12	26° 33' 0" 12	11° 16' 0" 12	56° 17' 0" 12
17	44° 17' 0" 12	57° 37' 0" 12	55° 32' 0" 12	28° 39' 0" 12	11° 01' 0" 12	58° 28' 0" 12
27	44° 08' 0" 12	57° 27' 0" 12	54° 50' 0" 12	29° 94' 0" 12	10° 82' 0" 12	60° 00' 0" 12
Dec. 7	43° 97' 0" 12	56° 98' 0" 12	53° 59' 0" 12	30° 94' 0" 12	10° 60' 0" 12	61° 26' 0" 12
17	43° 86' 0" 12	56° 50' 0" 12	52° 65' 0" 12	31° 31' 0" 12	10° 35' 0" 12	62° 04' 0" 12
27	43° 74' 0" 12	55° 85' 0" 12	51° 70' 0" 12	31° 07' 0" 12	10° 07' 0" 12	62° 31' 0" 12
37	43° 63' 0" 12	55° 07' 0" 12	50° 77' 0" 12	30° 19' 0" 12	9° 79' 0" 12	62° 08' 0" 12

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β Ceti.		θ^1 Ceti.		α Eridani.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h ₀ ^m ₃₅	[°] ₁₈ ['] ₅₃	^h ₁ ^m ₁₅	[°] ₉ ['] ₂	^h ₁ ^m ₃₁	[°] ₅₈ ['] ₄
Jan. 1	14 ^s 31 ^s	68 ["] 46 ["]	43 ^s 00 ^s	41 ["] 14 ["]	30 ^s 84 ^s	78 ["] 32 ["]
11	14 ^s 18 ^s 0 ["] 13	68 ["] 90 ["] 0 ["] 44	42 ^s 88 ^s 0 ["] 12	41 ["] 81 ["] 0 ["] 67	30 ^s 52 ^s 0 ["] 32	78 ["] 61 ["] 0 ["] 29
21	14 ^s 06 ^s 0 ["] 12	69 ["] 07 ["] 0 ["] 17	42 ^s 76 ^s 0 ["] 12	42 ["] 30 ["] 0 ["] 49	30 ^s 19 ^s 0 ["] 33	78 ["] 32 ["] 0 ["] 29
31	13 ^s 95 ^s 0 ["] 11	68 ["] 99 ["] 0 ["] 08	42 ^s 63 ^s 0 ["] 13	42 ["] 61 ["] 0 ["] 31	29 ^s 87 ^s 0 ["] 32	77 ["] 50 ["] 0 ["] 82
	0 ["] 10	0 ["] 37	0 ["] 11	0 ["] 10	0 ["] 30	1 ["] 38
Feb. 10	13 ^s 85 ^s	68 ["] 62 ["]	42 ^s 52 ^s	42 ["] 71 ["]	29 ^s 57 ^s	76 ["] 12 ["]
20	13 ^s 77 ^s 0 ["] 08	67 ["] 99 ["] 0 ["] 63	42 ^s 41 ^s 0 ["] 11	42 ["] 60 ["] 0 ["] 11	29 ^s 29 ^s 0 ["] 28	74 ["] 26 ["] 1 ["] 86
Mar. 2	13 ^s 71 ^s 0 ["] 06	67 ["] 08 ["] 0 ["] 91	42 ^s 32 ^s 0 ["] 09	42 ["] 25 ["] 0 ["] 35	29 ^s 05 ^s 0 ["] 24	71 ["] 95 ["] 2 ["] 31
12	13 ^s 69 ^s 0 ["] 02	65 ["] 92 ["] 1 ["] 16	42 ^s 26 ^s 0 ["] 06	41 ["] 68 ["] 0 ["] 57	28 ^s 86 ^s 0 ["] 19	69 ["] 26 ["] 2 ["] 69
	0 ["] 01	1 ["] 42	0 ["] 04	0 ["] 82	0 ["] 14	3 ["] 03
22	13 ^s 70 ^s	64 ["] 50 ["]	42 ^s 22 ^s	40 ["] 86 ["]	28 ^s 72 ^s	66 ["] 23 ["]
April 1	13 ^s 75 ^s 0 ["] 05	62 ["] 66 ["] 1 ["] 84	42 ^s 23 ^s 0 ["] 01	39 ["] 80 ["] 1 ["] 06	28 ^s 63 ^s 0 ["] 09	62 ["] 94 ["] 3 ["] 29
11	13 ^s 84 ^s 0 ["] 09	60 ["] 76 ["] 1 ["] 90	42 ^s 28 ^s 0 ["] 05	38 ["] 35 ["] 1 ["] 45	28 ^s 62 ^s 0 ["] 01	59 ["] 46 ["] 3 ["] 48
21	13 ^s 97 ^s 0 ["] 13	58 ["] 68 ["] 2 ["] 08	42 ^s 37 ^s 0 ["] 09	36 ["] 79 ["] 1 ["] 56	28 ^s 68 ^s 0 ["] 06	55 ["] 51 ["] 3 ["] 95
	0 ["] 17	2 ["] 23	0 ["] 14	1 ["] 75	0 ["] 13	3 ["] 64
May 1	14 ^s 14 ^s	56 ["] 45 ["]	42 ^s 51 ^s	35 ["] 04 ["]	28 ^s 81 ^s	51 ["] 87 ["]
11	14 ^s 36 ^s 0 ["] 22	54 ["] 11 ["] 2 ["] 34	42 ^s 68 ^s 0 ["] 17	33 ["] 10 ["] 1 ["] 94	29 ^s 01 ^s 0 ["] 20	48 ["] 27 ["] 3 ["] 60
21	14 ^s 61 ^s 0 ["] 25	51 ["] 71 ["] 2 ["] 40	42 ^s 90 ^s 0 ["] 22	31 ["] 02 ["] 2 ["] 08	29 ^s 01 ^s 0 ["] 27	44 ["] 80 ["] 3 ["] 47
31	14 ^s 89 ^s 0 ["] 28	49 ["] 31 ["] 2 ["] 40	43 ^s 15 ^s 0 ["] 25	28 ["] 84 ["] 2 ["] 18	29 ^s 28 ^s 0 ["] 33	41 ["] 53 ["] 3 ["] 27
	0 ["] 30	2 ["] 35	0 ["] 27	2 ["] 23	0 ["] 38	2 ["] 99
June 10	15 ^s 19 ^s	46 ["] 96 ["]	43 ^s 42 ^s	26 ["] 61 ["]	29 ^s 99 ^s	38 ["] 54 ["]
20	15 ^s 51 ^s 0 ["] 32	44 ["] 73 ["] 2 ["] 23	43 ^s 72 ^s 0 ["] 30	24 ["] 39 ["] 2 ["] 22	30 ^s 42 ^s 0 ["] 43	35 ["] 88 ["] 2 ["] 66
30	15 ^s 84 ^s 0 ["] 33	42 ["] 66 ["] 2 ["] 07	44 ^s 03 ^s 0 ["] 31	22 ["] 23 ["] 2 ["] 16	30 ^s 42 ^s 0 ["] 46	35 ["] 88 ["] 2 ["] 24
July 10	16 ^s 16 ^s 0 ["] 32	40 ["] 81 ["] 1 ["] 85	44 ^s 35 ^s 0 ["] 32	20 ["] 19 ["] 2 ["] 04	30 ^s 88 ^s 0 ["] 48	33 ["] 64 ["] 1 ["] 77
	0 ["] 32	1 ["] 58	0 ["] 31	1 ["] 87	0 ["] 50	1 ["] 25
20	16 ^s 48 ^s 0 ["] 30	39 ["] 23 ["] 1 ["] 27	44 ^s 66 ^s 0 ["] 30	18 ["] 32 ["] 1 ["] 65	31 ^s 86 ^s 0 ["] 48	30 ["] 62 ["] 0 ["] 72
30	16 ^s 78 ^s 0 ["] 28	37 ["] 96 ["] 0 ["] 93	44 ^s 96 ^s 0 ["] 29	16 ["] 67 ["] 1 ["] 39	32 ^s 34 ^s 0 ["] 47	29 ["] 92 ["] 0 ["] 14
Aug. 9	17 ^s 06 ^s 0 ["] 25	37 ["] 03 ["] 0 ["] 59	45 ^s 25 ^s 0 ["] 26	15 ["] 28 ["] 1 ["] 10	32 ^s 81 ^s 0 ["] 44	29 ["] 78 ["] 0 ["] 44
19	17 ^s 31 ^s 0 ["] 21	36 ["] 44 ["] 0 ["] 22	45 ^s 51 ^s 0 ["] 23	14 ["] 18 ["] 0 ["] 80	33 ^s 25 ^s 0 ["] 40	30 ["] 22 ["] 0 ["] 99
	0 ["] 17	0 ["] 12	0 ["] 20	0 ["] 47	0 ["] 34	1 ["] 50
29	17 ^s 52 ^s 0 ["] 14	36 ["] 34 ["] 0 ["] 44	45 ^s 94 ^s 0 ["] 17	12 ["] 91 ["] 0 ["] 16	33 ^s 99 ^s 0 ["] 29	32 ["] 71 ["] 1 ["] 96
Sept. 8	17 ^s 69 ^s 0 ["] 09	36 ["] 78 ["] 0 ["] 73	46 ^s 11 ^s 0 ["] 14	12 ["] 75 ["] 0 ["] 14	34 ^s 28 ^s 0 ["] 22	34 ["] 67 ["] 2 ["] 33
18	17 ^s 92 ^s 0 ["] 06	37 ["] 51 ["] 0 ["] 96	46 ^s 25 ^s 0 ["] 09	12 ["] 89 ["] 0 ["] 40	34 ^s 50 ^s 0 ["] 14	37 ["] 00 ["] 2 ["] 65
28	17 ^s 98 ^s 0 ["] 02	38 ["] 47 ["] 1 ["] 15	46 ^s 34 ^s 0 ["] 07	13 ["] 29 ["] 0 ["] 63	34 ^s 64 ^s 0 ["] 08	39 ["] 65 ["] 2 ["] 81
Oct. 8	18 ^s 00 ^s 0 ["] 01	39 ["] 62 ["] 1 ["] 29	46 ^s 41 ^s 0 ["] 03	13 ["] 92 ["] 0 ["] 82	34 ^s 72 ^s 0 ["] 01	42 ["] 46 ["] 2 ["] 89
18	17 ^s 99 ^s 0 ["] 04	40 ["] 91 ["] 1 ["] 31	46 ^s 44 ^s 0 ["] 00	14 ["] 74 ["] 0 ["] 94	34 ^s 73 ^s 0 ["] 07	45 ["] 35 ["] 2 ["] 85
Nov. 7	17 ^s 95 ^s 0 ["] 06	42 ["] 22 ["] 1 ["] 31	46 ^s 44 ^s 0 ["] 02	15 ["] 68 ["] 1 ["] 02	34 ^s 66 ^s 0 ["] 12	48 ["] 20 ["] 2 ["] 69
	0 ["] 09	1 ["] 26	0 ["] 04	1 ["] 05	0 ["] 18	50 ["] 89 ["] 2 ["] 42
17	17 ^s 89 ^s 0 ["] 10	44 ["] 79 ["] 1 ["] 13	46 ^s 38 ^s 0 ["] 07	17 ["] 75 ["] 1 ["] 01	34 ^s 36 ^s 0 ["] 23	53 ["] 31 ["] 2 ["] 05
27	17 ^s 70 ^s 0 ["] 11	45 ["] 92 ["] 0 ["] 97	46 ^s 31 ^s 0 ["] 09	18 ["] 76 ["] 0 ["] 95	34 ^s 13 ^s 0 ["] 26	55 ["] 36 ["] 1 ["] 60
Dec. 7	17 ^s 59 ^s 0 ["] 12	46 ["] 89 ["] 0 ["] 77	46 ^s 22 ^s 0 ["] 10	19 ["] 71 ["] 0 ["] 87	33 ^s 87 ^s 0 ["] 30	56 ["] 96 ["] 1 ["] 08
17	17 ^s 47 ^s 0 ["] 12	47 ["] 66 ["] 0 ["] 53	46 ^s 12 ^s 0 ["] 11	20 ["] 58 ["] 0 ["] 71	33 ^s 57 ^s 0 ["] 31	58 ["] 04 ["] 0 ["] 60
27	17 ^s 35 ^s	48 ["] 19 ["]	46 ^s 01 ^s	21 ["] 29 ["]	33 ^s 26 ^s	58 ["] 64 ["]

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α ARIETIS.		γ CETI.		α CETI.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 1 57	[°] 22 40	^h 2 34	[°] 2 31	^h 2 53	[°] 3 25
Jan. 1	49° 26' 0" 13	26° 65' 0" 31	42° 20' 0" 10	49° 94' 0" 67	36° 29' 0" 10	56° 42' 0" 67
11	49° 13' 0" 13	26° 34' 0" 48	42° 10' 0" 12	49° 27' 0" 60	36° 19' 0" 11	55° 73' 0" 59
21	49° 00' 0" 16	25° 86' 0" 63	41° 98' 0" 14	48° 67' 0" 53	36° 08' 0" 14	55° 16' 0" 51
31	48° 84' 0" 15	25° 23' 0" 75	41° 84' 0" 14	48° 14' 0" 41	35° 94' 0" 14	54° 65' 0" 43
Feb. 10	48° 69' 0" 14	24° 48' 0" 84	41° 70' 0" 14	47° 73' 0" 31	35° 80' 0" 16	54° 22' 0" 31
20	48° 55' 0" 13	23° 64' 0" 88	41° 56' 0" 14	47° 42' 0" 17	35° 64' 0" 14	53° 91' 0" 18
Mar. 2	48° 42' 0" 11	22° 76' 0" 89	41° 42' 0" 12	47° 25' 0" 00	35° 50' 0" 13	53° 73' 0" 04
12	48° 31' 0" 08	21° 87' 0" 83	41° 30' 0" 10	47° 25' 0" 16	35° 37' 0" 12	53° 69' 0" 12
22	48° 23' 0" 04	21° 04' 0" 75	41° 20' 0" 07	47° 41' 0" 35	35° 25' 0" 08	53° 81' 0" 29
April 1	48° 19' 0" 01	20° 29' 0" 59	41° 13' 0" 03	47° 76' 0" 56	35° 17' 0" 05	54° 10' 0" 49
11	48° 20' 0" 05	19° 70' 0" 39	41° 10' 0" 01	48° 32' 0" 77	35° 12' 0" 00	54° 59' 0" 70
21	48° 25' 0" 12	19° 31' 0" 15	41° 11' 0" 07	49° 09' 1° 09	35° 12' 0" 04	55° 29' 0" 90
May 1	48° 37' 0" 15	19° 16' 0" 12	41° 18' 0" 11	50° 18' 1° 22	35° 16' 0" 09	56° 19' 1° 23
11	48° 52' 0" 20	19° 28' 0" 40	41° 29' 0" 15	51° 40' 1° 42	35° 25' 0" 14	57° 42' 1° 32
21	48° 72' 0" 24	19° 68' 0" 68	41° 44' 0" 19	52° 82' 1° 59	35° 39' 0" 17	58° 74' 1° 50
31	48° 96' 0" 27	20° 36' 0" 95	41° 63' 0" 23	54° 41' 1° 73	35° 56' 0" 22	60° 24' 1° 64
June 10	49° 23' 0" 31	21° 31' 1° 20	41° 86' 0" 25	56° 14' 1° 84	35° 78' 0" 25	61° 88' 1° 75
20	49° 54' 0" 31	22° 51' 1° 41	42° 11' 0" 29	57° 98' 1° 89	36° 03' 0" 27	63° 63' 1° 82
30	49° 85' 0" 34	23° 92' 1° 60	42° 40' 0" 29	59° 87' 1° 90	36° 30' 0" 29	65° 45' 1° 84
July 10	50° 19' 0" 33	25° 52' 1° 74	42° 69' 0" 31	61° 77' 1° 87	36° 59' 0" 30	67° 29' 1° 80
20	50° 52' 0" 32	27° 26' 1° 83	43° 00' 0" 31	63° 64' 1° 76	36° 89' 0" 31	69° 09' 1° 73
30	50° 84' 0" 32	29° 09' 1° 88	43° 31' 0" 30	65° 40' 1° 63	37° 20' 0" 30	70° 82' 1° 60
Aug. 9	51° 16' 0" 30	30° 97' 1° 88	43° 61' 0" 29	67° 03' 1° 44	37° 50' 0" 30	72° 42' 1° 43
19	51° 46' 0" 27	32° 85' 1° 85	43° 90' 0" 28	68° 47' 1° 23	37° 80' 0" 28	73° 85' 1° 21
29	51° 73' 0" 24	34° 70' 1° 78	44° 18' 0" 25	69° 70' 0" 98	38° 08' 0" 27	75° 06' 0" 99
Sept. 8	51° 97' 0" 22	36° 48' 1° 66	44° 43' 0" 23	70° 68' 0" 72	38° 35' 0" 24	76° 05' 0" 73
18	52° 19' 0" 18	38° 14' 1° 54	44° 66' 0" 20	71° 40' 0" 46	38° 59' 0" 22	76° 78' 0" 47
28	52° 37' 0" 16	39° 68' 1° 39	44° 86' 0" 18	71° 86' 0" 21	38° 81' 0" 19	77° 25' 0" 23
Oct. 8	52° 53' 0" 11	41° 07' 1° 22	45° 04' 0" 14	72° 07' 0" 03	39° 00' 0" 16	77° 48' 0" 01
18	52° 64' 0" 09	42° 29' 1° 06	45° 18' 0" 12	72° 04' 0" 24	39° 16' 0" 14	77° 47' 0" 21
28	52° 73' 0" 06	43° 35' 0" 87	45° 30' 0" 09	71° 80' 0" 41	39° 30' 0" 10	77° 26' 0" 39
Nov. 7	52° 79' 0" 02	44° 22' 0" 70	45° 39' 0" 05	71° 39' 0" 55	39° 40' 0" 08	76° 87' 0" 53
17	52° 81' 0" 00	44° 92' 0" 52	45° 44' 0" 03	70° 84' 0" 64	39° 48' 0" 04	76° 34' 0" 62
27	52° 81' 0" 04	45° 44' 0" 34	45° 47' 0" 00	70° 20' 0" 70	39° 52' 0" 02	75° 72' 0" 69
Dec. 7	52° 77' 0" 06	45° 78' 0" 16	45° 47' 0" 03	69° 50' 0" 72	39° 54' 0" 02	75° 03' 0" 70
17	52° 71' 0" 09	45° 94' 0" 03	45° 44' 0" 06	68° 78' 0" 72	39° 52' 0" 05	74° 33' 0" 71
27	52° 62' 0" 11	45° 91' 0" 20	45° 38' 0" 09	68° 06' 0" 71	39° 47' 0" 07	73° 62' 0" 66
37	52° 51' 0" 11	45° 71' 0" 20	45° 29' 0" 09	67° 35' 0" 71	39° 40' 0" 07	72° 96' 0" 66

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α PERSEI.		η Tauri.		γ^1 Eridani.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 3 12	^m 49 15	^h 3 37	^m 23 35	^h 3 50	^m 13 58
Jan. 1	30 ^s 54 ^s	54 ["] 16 ["]	37 ^s 67 ^s	8 ["] 15 ["]	17 ^s 41 ^s	77 ["] 09 ["]
11	30 ^s 38 ^s 0 ["] 16	55 ["] 14 ["] 0 ["] 98	37 ^s 59 ^s 0 ["] 08	8 ["] 24 ["] 0 ["] 09	17 ^s 33 ^s 0 ["] 08	78 ["] 42 ["] 1 ["] 33
21	30 ^s 18 ^s 0 ["] 20	55 ["] 78 ["] 0 ["] 64	37 ^s 49 ^s 0 ["] 10	8 ["] 22 ["] 0 ["] 02	17 ^s 22 ^s 0 ["] 11	79 ["] 51 ["] 1 ["] 09
31	29 ^s 95 ^s 0 ["] 23	56 ["] 04 ["] 0 ["] 26	37 ^s 35 ^s 0 ["] 14	8 ["] 10 ["] 0 ["] 12	17 ^s 09 ^s 0 ["] 13	80 ["] 34 ["] 0 ["] 83
		0 ["] 25		0 ["] 16		0 ["] 16
Feb. 10	29 ^s 70 ^s	55 ["] 92 ["] 0 ["] 12	37 ^s 19 ^s	7 ["] 87 ["] 0 ["] 23	16 ^s 93 ^s	80 ["] 90 ["] 0 ["] 56
20	29 ^s 43 ^s 0 ["] 27	55 ["] 42 ["] 0 ["] 50	37 ^s 02 ^s 0 ["] 17	7 ["] 53 ["] 0 ["] 34	16 ^s 76 ^s 0 ["] 17	81 ["] 16 ["] 0 ["] 26
Mar. 2	29 ^s 18 ^s 0 ["] 25	54 ["] 58 ["] 0 ["] 84	36 ^s 84 ^s 0 ["] 18	7 ["] 11 ["] 0 ["] 42	16 ^s 58 ^s 0 ["] 18	81 ["] 13 ["] 0 ["] 03
12	28 ^s 94 ^s 0 ["] 24	53 ["] 44 ["] 1 ["] 14	36 ^s 67 ^s 0 ["] 17	6 ["] 62 ["] 0 ["] 49	16 ^s 41 ^s 0 ["] 17	80 ["] 80 ["] 0 ["] 33
		0 ["] 21		0 ["] 15		0 ["] 15
22	28 ^s 73 ^s	52 ["] 05 ["] 1 ["] 39	36 ^s 52 ^s 0 ["] 15	6 ["] 09 ["] 0 ["] 53	16 ^s 26 ^s 0 ["] 15	80 ["] 17 ["] 0 ["] 63
April 1	28 ^s 57 ^s 0 ["] 16	50 ["] 47 ["] 1 ["] 58	36 ^s 40 ^s 0 ["] 12	5 ["] 56 ["] 0 ["] 53	16 ^s 12 ^s 0 ["] 14	79 ["] 25 ["] 0 ["] 92
11	28 ^s 46 ^s 0 ["] 11	48 ["] 79 ["] 1 ["] 68	36 ^s 31 ^s 0 ["] 09	5 ["] 08 ["] 0 ["] 48	16 ^s 02 ^s 0 ["] 10	78 ["] 06 ["] 1 ["] 19
21	28 ^s 42 ^s 0 ["] 04	47 ["] 08 ["] 1 ["] 71	36 ^s 27 ^s 0 ["] 04	4 ["] 67 ["] 0 ["] 41	15 ^s 95 ^s 0 ["] 07	76 ["] 59 ["] 1 ["] 47
		0 ["] 02		0 ["] 31		0 ["] 02
May 1	28 ^s 44 ^s	45 ["] 42 ["] 1 ["] 66	36 ^s 27 ^s 0 ["] 00	4 ["] 36 ["] 0 ["] 31	15 ^s 93 ^s 0 ["] 02	74 ["] 88 ["] 1 ["] 71
11	28 ^s 55 ^s 0 ["] 11	43 ["] 73 ["] 1 ["] 69	36 ^s 32 ^s 0 ["] 05	4 ["] 21 ["] 0 ["] 15	15 ^s 94 ^s 0 ["] 01	72 ["] 95 ["] 1 ["] 93
21	28 ^s 71 ^s 0 ["] 16	42 ["] 38 ["] 1 ["] 35	36 ^s 32 ^s 0 ["] 11	4 ["] 21 ["] 0 ["] 03	15 ^s 94 ^s 0 ["] 08	72 ["] 95 ["] 2 ["] 32
31	28 ^s 94 ^s 0 ["] 23	42 ["] 38 ["] 1 ["] 10	36 ^s 43 ^s 0 ["] 16	4 ["] 24 ["] 0 ["] 22	16 ^s 02 ^s 0 ["] 11	70 ["] 63 ["] 2 ["] 27
		0 ["] 29		0 ["] 46		0 ["] 16
June 10	29 ^s 23 ^s	40 ["] 47 ["] 0 ["] 81	36 ^s 79 ^s 0 ["] 20	4 ["] 88 ["] 0 ["] 42	16 ^s 29 ^s 0 ["] 16	66 ["] 00 ["] 2 ["] 36
20	29 ^s 56 ^s 0 ["] 33	39 ["] 96 ["] 0 ["] 51	37 ^s 03 ^s 0 ["] 24	5 ["] 50 ["] 0 ["] 62	16 ^s 49 ^s 0 ["] 20	63 ["] 60 ["] 2 ["] 40
30	29 ^s 94 ^s 0 ["] 38	39 ["] 78 ["] 0 ["] 18	37 ^s 03 ^s 0 ["] 27	6 ["] 29 ["] 0 ["] 79	16 ^s 49 ^s 0 ["] 22	63 ["] 60 ["] 2 ["] 37
July 10	30 ^s 34 ^s 0 ["] 40	39 ["] 94 ["] 0 ["] 16	37 ^s 30 ^s 0 ["] 29	6 ["] 29 ["] 0 ["] 95	16 ^s 71 ^s 0 ["] 26	61 ["] 23 ["] 2 ["] 30
		0 ["] 43		7 ["] 24 ["] 1 ["] 08	16 ^s 97 ^s 0 ["] 28	58 ["] 93 ["] 2 ["] 15
20	30 ^s 77 ^s 0 ["] 43	40 ["] 42 ["] 0 ["] 48	37 ^s 91 ^s 0 ["] 32	8 ["] 32 ["] 0 ["] 28	17 ^s 25 ^s 0 ["] 28	56 ["] 78 ["] 1 ["] 93
30	31 ^s 20 ^s 0 ["] 44	41 ["] 22 ["] 0 ["] 80	38 ^s 23 ^s 0 ["] 32	9 ["] 50 ["] 1 ["] 18	17 ^s 54 ^s 0 ["] 29	54 ["] 85 ["] 1 ["] 93
Aug. 9	31 ^s 64 ^s 0 ["] 44	42 ["] 30 ["] 1 ["] 08	38 ^s 23 ^s 0 ["] 33	10 ["] 75 ["] 1 ["] 25	17 ^s 54 ^s 0 ["] 30	54 ["] 85 ["] 1 ["] 67
19	32 ^s 07 ^s 0 ["] 43	43 ["] 66 ["] 1 ["] 36	38 ^s 56 ^s 0 ["] 33	10 ["] 75 ["] 1 ["] 28	17 ^s 84 ^s 0 ["] 30	53 ["] 18 ["] 1 ["] 36
		0 ["] 42		12 ["] 03 ["] 1 ["] 27	18 ^s 14 ^s 0 ["] 30	51 ["] 82 ["] 1 ["] 00
29	32 ^s 49 ^s	45 ["] 25 ["] 1 ["] 59	39 ^s 21 ^s 0 ["] 32	12 ["] 03 ["] 1 ["] 27	18 ^s 14 ^s 0 ["] 30	51 ["] 82 ["] 1 ["] 00
Sept. 8	32 ^s 88 ^s 0 ["] 39	45 ["] 25 ["] 1 ["] 79	39 ^s 21 ^s 0 ["] 30	13 ["] 30 ["] 1 ["] 24	18 ^s 44 ^s 0 ["] 28	50 ["] 82 ["] 0 ["] 60
18	33 ^s 25 ^s 0 ["] 37	47 ["] 04 ["] 1 ["] 96	39 ^s 51 ^s 0 ["] 29	14 ["] 54 ["] 1 ["] 18	18 ^s 72 ^s 0 ["] 27	50 ["] 22 ["] 0 ["] 20
28	33 ^s 59 ^s 0 ["] 34	49 ["] 00 ["] 2 ["] 08	39 ^s 80 ^s 0 ["] 27	15 ["] 72 ["] 1 ["] 09	18 ^s 99 ^s 0 ["] 26	50 ["] 02 ["] 0 ["] 19
		0 ["] 31		16 ["] 81 ["] 1 ["] 01	19 ^s 25 ^s 0 ["] 23	50 ["] 21 ["] 0 ["] 57
Oct. 8	33 ^s 90 ^s	53 ["] 26 ["] 2 ["] 18	40 ^s 32 ^s 0 ["] 25	17 ["] 82 ["] 1 ["] 01	19 ^s 48 ^s 0 ["] 23	50 ["] 78 ["] 0 ["] 57
18	34 ^s 16 ^s 0 ["] 26	55 ["] 50 ["] 2 ["] 24	40 ^s 32 ^s 0 ["] 23	18 ["] 73 ["] 0 ["] 91	19 ^s 69 ^s 0 ["] 21	51 ["] 71 ["] 0 ["] 93
28	34 ^s 39 ^s 0 ["] 23	57 ["] 76 ["] 2 ["] 26	40 ^s 55 ^s 0 ["] 19	18 ["] 73 ["] 0 ["] 80	19 ^s 69 ^s 0 ["] 18	51 ["] 71 ["] 1 ["] 23
Nov. 7	34 ^s 57 ^s 0 ["] 18	57 ["] 76 ["] 2 ["] 24	40 ^s 74 ^s 0 ["] 17	19 ["] 53 ["] 0 ["] 70	19 ^s 87 ^s 0 ["] 15	52 ["] 94 ["] 1 ["] 47
		0 ["] 13		20 ["] 23 ["] 0 ["] 61	20 ^s 02 ^s 0 ["] 13	54 ["] 41 ["] 1 ["] 64
17	34 ^s 70 ^s	62 ["] 18 ["] 2 ["] 18	41 ^s 04 ^s 0 ["] 13	20 ["] 84 ["] 0 ["] 61	20 ^s 15 ^s 0 ["] 13	56 ["] 05 ["] 1 ["] 64
27	34 ^s 78 ^s 0 ["] 08	64 ["] 25 ["] 2 ["] 07	41 ^s 14 ^s 0 ["] 10	21 ["] 36 ["] 0 ["] 52	20 ^s 24 ^s 0 ["] 09	57 ["] 78 ["] 1 ["] 73
Dec. 7	34 ^s 81 ^s 0 ["] 03	66 ["] 17 ["] 1 ["] 92	41 ^s 14 ^s 0 ["] 07	21 ["] 36 ["] 0 ["] 43	20 ^s 24 ^s 0 ["] 05	57 ["] 78 ["] 1 ["] 75
17	34 ^s 78 ^s 0 ["] 03	67 ["] 88 ["] 1 ["] 71	41 ^s 21 ^s 0 ["] 02	21 ["] 79 ["] 0 ["] 34	20 ^s 29 ^s 0 ["] 01	59 ["] 53 ["] 1 ["] 71
		0 ["] 07		22 ["] 13 ["] 0 ["] 25	20 ^s 30 ^s 0 ["] 02	61 ["] 24 ["] 1 ["] 59
27	34 ^s 71 ^s	69 ["] 35 ["] 1 ["] 47	41 ^s 22 ^s 0 ["] 01	22 ["] 38 ["] 0 ["] 25	20 ^s 28 ^s 0 ["] 02	62 ["] 83 ["] 1 ["] 59
37	34 ^s 58 ^s 0 ["] 13	70 ["] 52 ["] 1 ["] 17	41 ^s 17 ^s 0 ["] 05	22 ["] 58 ["] 0 ["] 20	20 ^s 23 ^s 0 ["] 05	64 ["] 25 ["] 1 ["] 42

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α TAURI.		α AURIGÆ.		β ORIONIS.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. S.
	^h 4 ^m 26	[°] 16 ['] 10	^h 5 ^m 4	[°] 45 ['] 49	^h 5 ^m 6	[°] 8 ['] 2
Jan. 1	^s 24 ^s 24	["] 6 ["] 96	^s 26 ^s 56	["] 16 ["] 10	^s 34 ^s 10	["] 62 ["] 21
11	24 20 0 04	6 78 0 18	26 54 0 02	17 52 1 42	34 09 0 01	63 63
21	24 13 0 07	6 60 0 18	26 46 0 08	18 80 1 28	34 03 0 06	64 89
31	24 02 0 11	6 42 0 18	26 33 0 13	19 88 1 08	33 94 0 09	65 93
	0 14	0 19	0 18	0 83	0 13	
Feb. 10	23 88 0 16	6 23 0 19	26 15 0 22	20 71 0 56	33 81 0 16	66 74
20	23 72 0 18	6 04 0 20	25 93 0 24	21 27 0 27	33 65 0 17	67 30
Mar. 2	23 54 0 17	5 84 0 19	25 69 0 25	21 54 0 05	33 48 0 18	67 61
12	23 37 0 16	5 65 0 17	25 44 0 25	21 49 0 34	33 30 0 18	67 66
	0 15	0 14	0 24	0 61	0 17	
22	23 21 0 15	5 48 0 14	25 19 0 24	21 15 0 61	33 12 0 17	67 46
April 1	23 06 0 12	5 34 0 07	24 95 0 20	20 54 0 85	32 95 0 14	67 01
11	22 94 0 08	5 27 0 00	24 75 0 15	19 69 1 03	32 81 0 12	66 30
21	22 86 0 04	5 27 0 11	24 60 0 11	18 66 1 18	32 69 0 08	65 35
	0 00	0 22	0 05	1 26	0 05	
May 1	22 82 0 00	5 38 0 22	24 49 0 05	17 48 1 26	32 61 0 05	64 17
11	22 82 0 05	5 60 0 37	24 44 0 02	16 22 1 28	32 56 0 00	62 78
21	22 87 0 11	5 97 0 56	24 46 0 07	14 94 1 26	32 56 0 05	61 19
31	22 98 0 15	6 53 0 67	24 53 0 16	13 68 1 29	32 61 0 09	59 43
	0 19	0 79	0 19	1 04	0 13	
June 10	23 13 0 19	7 20 0 79	24 69 0 19	12 39 1 04	32 70 0 13	57 35
20	23 32 0 22	7 99 0 93	24 88 0 26	11 35 0 90	32 83 0 17	55 36
30	23 54 0 25	8 92 1 00	25 14 0 29	10 45 0 72	33 00 0 20	53 33
July 10	23 79 0 28	9 92 1 07	25 43 0 33	9 73 0 51	33 20 0 23	51 31
	0 29	1 10	0 37	0 32	0 25	
20	24 07 0 29	10 99 1 10	25 76 0 37	9 22 0 32	33 43 0 25	49 37
30	24 36 0 31	12 09 1 10	26 13 0 38	8 90 0 12	33 68 0 27	47 56
Aug. 9	24 67 0 31	13 19 1 05	26 51 0 40	8 78 0 08	33 95 0 28	45 94
19	24 98 0 31	14 24 0 98	26 91 0 42	8 86 0 28	34 23 0 29	44 55
	0 30	0 87	0 41	0 46	0 29	
29	25 29 0 30	15 22 0 87	27 33 0 41	9 14 0 46	34 52 0 29	43 46
Sept. 8	25 59 0 30	16 09 0 75	27 74 0 41	9 60 0 62	34 81 0 28	42 70
18	25 89 0 29	16 84 0 60	28 15 0 41	10 22 0 79	35 09 0 29	42 30
28	26 18 0 27	17 44 0 47	28 56 0 39	11 01 0 93	35 38 0 27	42 27
	0 25	0 32	0 38	1 08	0 26	
Oct. 8	26 45 0 23	17 91 0 32	28 95 0 38	11 94 1 21	35 65 0 24	42 61
18	26 70 0 21	18 23 0 19	29 33 0 35	13 02 1 32	35 91 0 26	43 30
28	26 93 0 17	18 42 0 07	29 68 0 32	14 23 1 43	36 15 0 23	44 30
Nov. 7	27 14 0 15	18 49 0 01	30 00 0 28	15 55 1 56	36 38 0 19	45 57
	0 11	0 08	0 25	1 51	0 16	
17	27 31 0 11	18 48 0 13	30 28 0 19	16 98 1 56	36 57 0 14	47 05
27	27 46 0 07	18 40 0 15	30 53 0 14	18 49 1 58	36 73 0 09	48 66
Dec. 7	27 57 0 03	18 27 0 17	30 72 0 08	20 05 1 56	36 87 0 05	50 36
17	27 64 0 01	18 12 0 17	30 86 0 02	21 63 1 49	36 96 0 01	52 05
	0 00	0 17	0 02	1 49	0 01	
27	27 67 0 00	17 95 0 17	30 94 0 02	23 19 1 49	37 01 0 01	53 68
37	27 66 0 00	17 78 0 17	30 96 0 02	24 68 1 49	37 02 0 01	55 19

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β TAURI.		δ ORIONIS.		α LEOPORIS.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 5 ^m 15	^o 28 ['] 27	^h 5 ^m 23	^o 0 ['] 25	^h 5 ^m 25	^o 17 ['] 56
Jan. 1	48° 45' 00"	34° 78' 00"	32° 07' 00"	46° 13' 00"	25° 16' 00"	53° 14' 00"
11	48° 46' 00"	35° 28' 00"	32° 08' 00"	47° 24' 00"	25° 14' 00"	55° 08' 00"
21	48° 42' 00"	35° 75' 00"	32° 04' 00"	48° 20' 00"	25° 09' 00"	56° 80' 00"
31	48° 33' 00"	36° 16' 00"	31° 96' 00"	49° 01' 00"	25° 00' 00"	58° 25' 00"
Feb. 10	48° 20' 00"	36° 48' 00"	31° 85' 00"	49° 64' 00"	24° 86' 00"	59° 39' 00"
20	48° 04' 00"	36° 71' 00"	31° 70' 00"	50° 10' 00"	24° 70' 00"	60° 22' 00"
Mar. 2	47° 86' 00"	36° 82' 00"	31° 54' 00"	50° 38' 00"	24° 52' 00"	60° 71' 00"
12	47° 66' 00"	36° 81' 00"	31° 37' 00"	50° 47' 00"	24° 32' 00"	60° 84' 00"
22	47° 47' 00"	36° 69' 00"	31° 19' 00"	50° 38' 00"	24° 13' 00"	60° 67' 00"
April 1	47° 29' 00"	36° 45' 00"	31° 02' 00"	50° 11' 00"	23° 94' 00"	60° 14' 00"
11	47° 13' 00"	36° 13' 00"	30° 87' 00"	49° 66' 00"	23° 77' 00"	59° 29' 00"
21	47° 00' 00"	35° 75' 00"	30° 75' 00"	49° 03' 00"	23° 63' 00"	58° 14' 00"
May 1	46° 92' 00"	35° 35' 00"	30° 67' 00"	48° 22' 00"	23° 52' 00"	56° 69' 00"
11	46° 88' 00"	34° 94' 00"	30° 61' 00"	47° 24' 00"	23° 45' 00"	54° 98' 00"
21	46° 88' 00"	34° 58' 00"	30° 61' 00"	46° 09' 00"	23° 42' 00"	53° 04' 00"
31	46° 94' 00"	34° 27' 00"	30° 64' 00"	44° 80' 00"	23° 44' 00"	50° 91' 00"
June 10	47° 05' 00"	34° 06' 00"	30° 72' 00"	43° 38' 00"	23° 50' 00"	48° 62' 00"
20	47° 22' 00"	33° 94' 00"	30° 85' 00"	41° 70' 00"	23° 61' 00"	46° 00' 00"
30	47° 42' 00"	33° 94' 00"	31° 01' 00"	40° 12' 00"	23° 76' 00"	43° 57' 00"
July 10	47° 65' 00"	34° 06' 00"	31° 20' 00"	38° 51' 00"	23° 94' 00"	41° 18' 00"
20	47° 92' 00"	34° 28' 00"	31° 42' 00"	36° 94' 00"	24° 15' 00"	38° 88' 00"
30	48° 21' 00"	34° 58' 00"	31° 66' 00"	35° 45' 00"	24° 39' 00"	36° 76' 00"
Aug. 9	48° 51' 00"	34° 97' 00"	31° 93' 00"	34° 09' 00"	24° 65' 00"	34° 87' 00"
19	48° 84' 00"	35° 40' 00"	32° 20' 00"	32° 90' 00"	24° 92' 00"	33° 27' 00"
29	49° 17' 00"	35° 87' 00"	32° 49' 00"	31° 94' 00"	25° 21' 00"	32° 04' 00"
Sept. 8	49° 50' 00"	36° 36' 00"	32° 77' 00"	31° 23' 00"	25° 50' 00"	31° 20' 00"
18	49° 84' 00"	36° 84' 00"	33° 07' 00"	30° 81' 00"	25° 78' 00"	30° 80' 00"
28	50° 17' 00"	37° 32' 00"	33° 35' 00"	30° 69' 00"	26° 09' 00"	30° 85' 00"
Oct. 8	50° 49' 00"	37° 78' 00"	33° 63' 00"	30° 88' 00"	26° 37' 00"	31° 36' 00"
18	50° 80' 00"	38° 22' 00"	33° 90' 00"	31° 34' 00"	26° 64' 00"	32° 29' 00"
28	51° 10' 00"	38° 65' 00"	34° 16' 00"	32° 07' 00"	26° 90' 00"	33° 61' 00"
Nov. 7	51° 37' 00"	39° 08' 00"	34° 40' 00"	33° 02' 00"	27° 14' 00"	35° 27' 00"
17	51° 61' 00"	39° 52' 00"	34° 61' 00"	34° 14' 00"	27° 34' 00"	37° 19' 00"
27	51° 83' 00"	39° 97' 00"	34° 80' 00"	35° 37' 00"	27° 52' 00"	39° 30' 00"
Dec. 7	52° 00' 00"	40° 45' 00"	34° 95' 00"	36° 67' 00"	27° 66' 00"	41° 52' 00"
17	52° 14' 00"	40° 94' 00"	35° 06' 00"	37° 97' 00"	27° 77' 00"	43° 76' 00"
27	52° 22' 00"	41° 45' 00"	35° 14' 00"	39° 23' 00"	27° 83' 00"	45° 93' 00"
37	52° 26' 00"	41° 96' 00"	35° 17' 00"	40° 39' 00"	27° 84' 00"	47° 97' 00"

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	ε ORIONIS.		α Columbae.		α ORIONIS.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. N.
	^h 5 ^m 27	^o 1 ⁱ 18	^h 5 ^m 33	^o 34 ⁱ 9	^h 5 ^m 46	^o 7
Jan. 1	47° 88' 00" 01	54° 79' 11" 17	39° 32' 00" 03	77° 15' 22" 58	11° 50' 00" 03	7° 31'
11	47° 89' 00" 03	55° 96' 11" 03	39° 29' 00" 09	79° 73' 22" 30	11° 53' 00" 02	6° 58'
21	47° 86' 00" 08	56° 99' 00" 85	39° 20' 00" 13	82° 03' 11" 96	11° 51' 00" 05	5° 95'
31	47° 78' 00" 11	57° 84' 00" 68	39° 07' 00" 17	83° 99' 00" 10	11° 46' 00" 10	5° 43'
Feb. 10	47° 67' 00" 14	58° 52' 00" 48	38° 90' 00" 20	85° 56' 11" 14	11° 36' 00" 13	5° 04'
20	47° 53' 00" 17	59° 00' 00" 30	38° 70' 00" 23	86° 70' 00" 69	11° 23' 00" 16	4° 76'
Mar. 2	47° 36' 00" 17	59° 30' 00" 10	38° 47' 00" 24	87° 39' 00" 25	11° 07' 00" 17	4° 59'
12	47° 19' 00" 18	59° 40' 00" 09	38° 23' 00" 24	87° 64' 00" 20	10° 90' 00" 17	4° 54'
22	47° 01' 00" 17	59° 31' 00" 28	37° 99' 00" 23	87° 44' 00" 65	10° 73' 00" 17	4° 58'
April 1	46° 84' 00" 15	59° 03' 00" 47	37° 76' 00" 21	86° 79' 11" 08	10° 56' 00" 16	4° 73'
11	46° 69' 00" 12	58° 56' 00" 66	37° 55' 00" 19	85° 71' 11" 47	10° 40' 00" 13	4° 99'
21	46° 57' 00" 09	57° 90' 00" 85	37° 36' 00" 16	84° 24' 11" 84	10° 27' 00" 10	5° 35'
May 1	46° 48' 00" 06	57° 05' 11" 02	37° 20' 00" 11	82° 40' 22" 18	10° 17' 00" 06	5° 83'
11	46° 42' 00" 01	56° 03' 11" 19	37° 09' 00" 06	80° 22' 22" 47	10° 11' 00" 02	6° 43'
21	46° 41' 00" 03	54° 84' 11" 34	37° 03' 00" 02	77° 75' 22" 70	10° 09' 00" 02	7° 14'
31	46° 44' 00" 08	53° 50' 11" 47	37° 01' 00" 02	75° 05' 22" 87	10° 11' 00" 06	7° 96'
June 10	46° 52' 00" 12	52° 03' 11" 57	37° 03' 00" 09	72° 18' 32" 27	10° 17' 00" 12	8° 89'
20	46° 64' 00" 16	50° 46' 11" 62	37° 12' 00" 13	68° 91' 31" 01	10° 29' 00" 14	10° 01'
30	46° 80' 00" 18	48° 84' 11" 64	37° 25' 00" 17	65° 90' 22" 96	10° 43' 00" 18	11° 10'
July 10	46° 98' 00" 22	47° 20' 11" 61	37° 42' 00" 21	62° 94' 22" 81	10° 61' 00" 21	12° 23'
20	47° 20' 00" 24	45° 59' 11" 53	37° 63' 00" 23	60° 13' 22" 59	10° 82' 00" 24	13° 36'
30	47° 44' 00" 26	44° 06' 11" 39	37° 86' 00" 27	57° 54' 22" 29	11° 06' 00" 25	14° 44'
Aug. 9	47° 70' 00" 27	42° 67' 11" 21	38° 13' 00" 29	55° 25' 11" 91	11° 31' 00" 27	15° 46'
19	47° 97' 00" 29	41° 46' 00" 98	38° 42' 00" 31	53° 34' 11" 47	11° 58' 00" 28	16° 35'
29	48° 26' 00" 28	40° 48' 00" 72	38° 73' 00" 31	51° 87' 00" 96	11° 86' 00" 30	17° 09'
Sept. 8	48° 54' 00" 29	39° 76' 00" 42	39° 04' 00" 33	50° 91' 00" 42	12° 16' 00" 29	17° 64'
18	48° 83' 00" 29	39° 34' 00" 12	39° 37' 00" 32	50° 49' 00" 14	12° 45' 00" 30	17° 99'
28	49° 12' 00" 28	39° 22' 00" 20	39° 69' 00" 31	50° 63' 00" 68	12° 75' 00" 29	18° 10'
Oct. 8	49° 40' 00" 27	39° 42' 00" 50	40° 00' 00" 30	51° 31' 11" 24	13° 04' 00" 28	18° 00'
18	49° 67' 00" 26	39° 92' 00" 76	40° 30' 00" 28	52° 55' 11" 71	13° 32' 00" 28	17° 67'
28	49° 93' 00" 24	40° 68' 11" 00	40° 58' 00" 25	54° 26' 22" 15	13° 60' 00" 26	17° 15'
Nov. 7	50° 17' 00" 22	41° 68' 11" 18	40° 83' 00" 22	56° 41' 22" 49	13° 86' 00" 24	16° 47'
17	50° 39' 00" 19	42° 86' 11" 29	41° 05' 00" 19	58° 90' 22" 73	14° 10' 00" 21	15° 66'
27	50° 58' 00" 15	44° 15' 11" 37	41° 24' 00" 14	61° 63' 22" 89	14° 31' 00" 18	14° 77'
Dec. 7	50° 73' 00" 12	45° 52' 11" 37	41° 38' 00" 10	64° 52' 22" 92	14° 49' 00" 14	13° 84'
17	50° 85' 00" 08	46° 89' 11" 33	41° 48' 00" 04	67° 44' 22" 86	14° 63' 00" 11	12° 93'
27	50° 93' 00" 04	48° 22' 11" 23	41° 52' 00" 00	70° 30' 22" 70	14° 74' 00" 06	12° 06'
37	50° 97' 00" 00	49° 45' 11" 23	41° 52' 00" 00	73° 00' 22" 70	14° 80' 00" 06	11° 27'

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

834.	μ Geminorum.		51 (Hev.) Cephei.		α Argus.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 6 12 ^m	[°] 22 35 [']	^h 6 19 ^m	[°] 87 15 [']	^h 6 20 ^m	[°] 52 36 [']
an. 1	55.33 ^s	27.79 ["]	98.05 ^s	53.48 ["]	17.68 ^s	30.01 ["]
11	55.39 ^s	27.91 ["]	98.12 ^s	56.79 ["]	17.64 ^s	33.31 ["]
21	55.41 ^s	28.09 ["]	97.30 ^s	59.99 ["]	17.54 ^s	36.37 ["]
31	55.37 ^s	28.33 ["]	95.60 ^s	62.98 ["]	17.37 ^s	39.10 ["]
	0.08	0.26	2.49	2.66	0.23	2.33
eb. 10	55.29	28.59	93.11	65.64	17.14	41.43
20	55.17	28.86	89.94	67.87	16.86	43.32
ar. 2	55.02	29.10	86.25	69.59	16.54	44.72
12	54.84	29.31	82.17	70.76	16.20	45.61
	0.18	0.16	4.26	0.56	0.36	0.37
22	54.66	29.47	77.91	71.32	15.84	45.98
pril 1	54.48	29.57	73.62	71.28	15.48	45.83
11	54.31	29.62	69.50	70.65	15.13	45.15
21	54.16	29.62	65.69	69.47	14.81	44.00
	0.12	0.02	3.35	1.69	0.29	1.63
ay 1	54.04	29.60	62.34	67.78	14.52	42.37
11	53.95	29.56	59.56	65.67	14.27	40.32
21	53.91	29.53	57.46	63.20	14.08	37.88
31	53.92	29.51	56.10	60.47	13.94	35.12
	0.05	0.03	0.57	2.90	0.09	3.02
une 10	53.97	29.54	55.53	57.57	13.85	32.10
20	54.05	29.60	55.75	54.59	13.83	28.89
30	54.20	29.73	56.89	51.31	13.87	25.24
uly 10	54.38	29.90	58.74	48.41	13.98	21.90
	0.20	0.19	2.56	2.74	0.16	3.25
20	54.58	30.09	61.30	45.67	14.14	18.65
30	54.82	30.31	64.52	43.16	14.36	15.58
ag. 9	55.08	30.54	68.32	40.93	14.62	12.79
19	55.36	30.74	72.64	39.03	14.93	10.35
	0.29	0.18	4.74	1.53	0.34	1.98
29	55.65	30.92	77.38	37.50	15.27	8.37
pt. 8	55.96	31.04	82.45	36.37	15.64	6.92
18	56.27	31.09	87.77	35.69	16.03	6.05
28	56.59	31.08	93.20	35.46	16.44	5.81
	0.33	0.09	5.46	0.24	0.41	0.39
ct. 8	56.92	30.99	98.66	35.70	16.85	6.20
18	57.24	30.84	104.04	36.42	17.25	7.23
28	57.55	30.64	109.21	37.60	17.63	8.86
ov. 7	57.85	30.41	114.05	39.26	17.98	11.04
	0.28	0.23	4.38	2.08	0.31	2.65
17	58.13	30.18	118.43	41.34	18.29	13.69
27	58.39	29.98	122.25	43.82	18.56	16.72
ec. 7	58.61	29.83	125.39	46.63	18.77	20.01
17	58.80	29.74	127.74	49.71	18.91	23.45
	0.14	0.01	1.51	3.24	0.08	3.47
27	58.94	29.73	129.25	52.95	18.99	26.92
37	59.04	29.80	129.86	56.28	18.99	30.31

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α CANIS MAJORIS.		ε Canis Majoris.		δ Geminorum.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. N.
	^h 6 ^m 37	^o 16 ['] 29	^h 6 ^m 52	^o 28 ['] 44	^h 7 ^m 10	^o 22
Jan. 1	50° 39' 00"	39° 82' 21"	7° 09' 00"	61° 66' 27"	12° 52' 00"	49° 47' 00"
11	50° 44' 00"	42° 03' 21"	7° 15' 00"	64° 44' 27"	12° 64' 00"	49° 44' 00"
21	50° 45' 00"	44° 07' 00"	7° 16' 00"	67° 03' 27"	12° 71' 00"	49° 53' 00"
31	50° 41' 00"	45° 88' 18"	7° 11' 00"	69° 40' 27"	12° 73' 00"	49° 75' 00"
Feb. 10	50° 33' 00"	47° 41' 12"	7° 02' 00"	71° 45' 17"	12° 70' 00"	50° 06' 00"
20	50° 21' 00"	48° 65' 00"	6° 88' 00"	73° 16' 13"	12° 62' 00"	50° 43' 00"
Mar. 2	50° 05' 00"	49° 58' 00"	6° 71' 00"	74° 48' 00"	12° 50' 00"	50° 84' 00"
12	49° 88' 00"	50° 18' 00"	6° 51' 00"	75° 40' 00"	12° 35' 00"	51° 24' 00"
22	49° 69' 00"	50° 46' 00"	6° 30' 00"	75° 92' 00"	12° 18' 00"	51° 62' 00"
April 1	49° 50' 00"	50° 42' 00"	6° 08' 00"	76° 03' 00"	12° 01' 00"	51° 96' 00"
11	49° 31' 00"	50° 06' 00"	5° 86' 00"	75° 73' 00"	11° 83' 00"	52° 24' 00"
21	49° 14' 00"	49° 39' 00"	5° 66' 00"	75° 03' 00"	11° 67' 00"	52° 46' 00"
May 1	48° 99' 00"	48° 43' 00"	5° 48' 00"	73° 96' 00"	11° 52' 00"	52° 61' 00"
11	48° 88' 00"	47° 20' 00"	5° 33' 00"	72° 53' 00"	11° 41' 00"	52° 72' 00"
21	48° 79' 00"	45° 72' 00"	5° 22' 00"	70° 77' 00"	11° 33' 00"	52° 78' 00"
31	48° 75' 00"	44° 02' 00"	5° 14' 00"	68° 74' 00"	11° 28' 00"	52° 81' 00"
June 10	48° 75' 00"	42° 13' 00"	5° 10' 00"	66° 46' 00"	11° 28' 00"	52° 81' 00"
20	48° 78' 00"	40° 10' 00"	5° 10' 00"	63° 99' 00"	11° 32' 00"	52° 81' 00"
30	48° 85' 00"	37° 99' 00"	5° 15' 00"	61° 40' 00"	11° 39' 00"	52° 79' 00"
July 10	48° 98' 00"	35° 62' 00"	5° 25' 00"	58° 49' 00"	11° 52' 00"	52° 77' 00"
20	49° 12' 00"	33° 51' 00"	5° 37' 00"	55° 87' 00"	11° 67' 00"	52° 74' 00"
30	49° 30' 00"	31° 50' 00"	5° 54' 00"	53° 33' 00"	11° 86' 00"	52° 68' 00"
Aug. 9	49° 50' 00"	29° 66' 00"	5° 73' 00"	51° 02' 00"	12° 07' 00"	52° 59' 00"
19	49° 74' 00"	28° 05' 00"	5° 96' 00"	48° 96' 00"	12° 31' 00"	52° 46' 00"
29	49° 99' 00"	26° 74' 00"	6° 21' 00"	47° 24' 00"	12° 56' 00"	52° 26' 00"
Sept. 8	50° 25' 00"	25° 80' 00"	6° 48' 00"	45° 93' 00"	12° 84' 00"	51° 99' 00"
18	50° 53' 00"	25° 25' 00"	6° 77' 00"	45° 09' 00"	13° 14' 00"	51° 64' 00"
28	50° 82' 00"	25° 14' 00"	7° 07' 00"	44° 76' 00"	13° 45' 00"	51° 20' 00"
Oct. 8	51° 12' 00"	25° 46' 00"	7° 38' 00"	44° 96' 00"	13° 77' 00"	50° 68' 00"
18	51° 41' 00"	26° 22' 00"	7° 70' 00"	45° 70' 00"	14° 10' 00"	50° 09' 00"
28	51° 70' 00"	27° 42' 00"	8° 01' 00"	46° 94' 00"	14° 43' 00"	49° 46' 00"
Nov. 7	51° 98' 00"	28° 98' 00"	8° 30' 00"	48° 66' 00"	14° 75' 00"	48° 81' 00"
17	52° 25' 00"	30° 85' 00"	8° 59' 00"	50° 78' 00"	15° 07' 00"	48° 17' 00"
27	52° 48' 00"	32° 97' 00"	8° 85' 00"	53° 24' 00"	15° 37' 00"	47° 58' 00"
Dec. 7	52° 70' 00"	35° 27' 00"	9° 07' 00"	55° 95' 00"	15° 64' 00"	47° 08' 00"
17	52° 87' 00"	37° 64' 00"	9° 25' 00"	58° 80' 00"	15° 88' 00"	46° 68' 00"
27	53° 00' 00"	40° 00' 00"	9° 39' 00"	61° 70' 00"	16° 08' 00"	46° 41' 00"
37	53° 09' 00"	42° 30' 00"	9° 48' 00"	64° 55' 00"	16° 24' 00"	46° 29' 00"

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α GEMINORUM.			α CANIS MINORIS.			β GEMINORUM.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	^h 7 ^m 23	^o 32 ⁱ 14		^h 7 ^m 30	^o 5 ⁱ 38		^h 7 ^m 35	^o 28 ⁱ 25	
Jan. 1	60° 19' ^s	40° 01' ["]	0° 54'	36° 92' ^s	40° 47' ["]	1° 16'	9° 22' ^s	12° 33' ["]	0° 26'
11	60° 34' ^s	40° 55' ["]	0° 54'	37° 05' ^s	39° 31' ["]	1° 01'	9° 37' ^s	12° 59' ["]	0° 41'
21	60° 44' ^s	41° 23' ["]	0° 68'	37° 13' ^s	38° 30' ["]	0° 83'	9° 47' ^s	13° 01' ["]	0° 56'
31	60° 47' ^s	42° 03' ["]	0° 80'	37° 16' ^s	37° 47' ["]	0° 65'	9° 52' ^s	13° 57' ["]	0° 66'
Feb. 10	60° 45' ^s	42° 89' ["]	0° 88'	37° 14' ^s	36° 82' ["]	0° 46'	9° 51' ^s	14° 23' ["]	0° 72'
20	60° 38' ^s	43° 77' ["]	0° 84'	37° 08' ^s	36° 36' ["]	0° 30'	9° 45' ^s	14° 95' ["]	0° 73'
Mar. 2	60° 26' ^s	44° 61' ["]	0° 77'	36° 98' ^s	36° 06' ["]	0° 15'	9° 34' ^s	15° 68' ["]	0° 69'
12	60° 10' ^s	45° 38' ["]	0° 66'	36° 84' ^s	35° 91' ["]	0° 00'	9° 20' ^s	16° 37' ["]	0° 63'
22	59° 92' ^s	46° 04' ["]	0° 52'	36° 69' ^s	35° 91' ["]	0° 12'	9° 03' ^s	17° 00' ["]	0° 53'
April 1	59° 73' ^s	46° 56' ["]	0° 36'	36° 53' ^s	36° 03' ["]	0° 24'	8° 85' ^s	17° 53' ["]	0° 41'
11	59° 54' ^s	46° 92' ["]	0° 19'	36° 36' ^s	36° 27' ["]	0° 34'	8° 66' ^s	17° 94' ["]	0° 29'
21	59° 36' ^s	47° 11' ["]	0° 02'	36° 20' ^s	36° 61' ["]	0° 44'	8° 48' ^s	18° 23' ["]	0° 15'
May 1	59° 19' ^s	47° 13' ["]	0° 12'	36° 06' ^s	37° 05' ["]	0° 53'	8° 33' ^s	18° 38' ["]	0° 03'
11	59° 06' ^s	47° 01' ["]	0° 26'	35° 94' ^s	37° 58' ["]	0° 61'	8° 19' ^s	18° 41' ["]	0° 09'
21	58° 96' ^s	46° 75' ["]	0° 38'	35° 85' ^s	38° 19' ["]	0° 68'	8° 09' ^s	18° 32' ["]	0° 19'
31	58° 90' ^s	46° 37' ["]	0° 47'	35° 79' ^s	38° 87' ["]	0° 75'	8° 02' ^s	18° 13' ["]	0° 28'
June 10	58° 88' ^s	45° 90' ["]	0° 55'	35° 77' ^s	39° 62' ["]	0° 81'	8° 00' ^s	17° 85' ["]	0° 34'
20	58° 90' ^s	45° 35' ["]	0° 60'	35° 78' ^s	40° 43' ["]	0° 85'	8° 01' ^s	17° 51' ["]	0° 39'
30	58° 97' ^s	44° 75' ["]	0° 64'	35° 82' ^s	41° 28' ["]	0° 85'	8° 06' ^s	17° 12' ["]	0° 45'
July 10	59° 08' ^s	44° 11' ["]	0° 73'	35° 90' ^s	42° 13' ["]	0° 92'	8° 16' ^s	16° 67' ["]	0° 52'
20	59° 24' ^s	43° 38' ["]	0° 68'	36° 03' ^s	43° 05' ["]	0° 78'	8° 30' ^s	16° 15' ["]	0° 52'
30	59° 43' ^s	42° 70' ["]	0° 69'	36° 17' ^s	43° 83' ["]	0° 70'	8° 46' ^s	15° 63' ["]	0° 55'
Aug. 9	59° 64' ^s	42° 01' ["]	0° 71'	36° 34' ^s	44° 53' ["]	0° 57'	8° 66' ^s	15° 08' ["]	0° 58'
19	59° 89' ^s	41° 30' ["]	0° 71'	36° 54' ^s	45° 10' ["]	0° 41'	8° 89' ^s	14° 50' ["]	0° 63'
29	60° 16' ^s	40° 59' ["]	0° 72'	36° 77' ^s	45° 51' ["]	0° 21'	9° 14' ^s	13° 87' ["]	0° 67'
Sept. 8	60° 46' ^s	39° 87' ["]	0° 73'	37° 01' ^s	45° 72' ["]	0° 01'	9° 42' ^s	13° 20' ["]	0° 71'
18	60° 78' ^s	39° 14' ["]	0° 72'	37° 27' ^s	45° 71' ["]	0° 25'	9° 71' ^s	12° 49' ["]	0° 75'
28	61° 11' ^s	38° 42' ["]	0° 71'	37° 54' ^s	45° 46' ["]	0° 50'	10° 03' ^s	11° 74' ["]	0° 77'
Oct. 8	61° 45' ^s	37° 71' ["]	0° 66'	37° 83' ^s	44° 96' ["]	0° 73'	10° 36' ^s	10° 97' ["]	0° 78'
18	61° 81' ^s	37° 05' ["]	0° 62'	38° 13' ^s	44° 23' ["]	0° 96'	10° 70' ^s	10° 19' ["]	0° 76'
28	62° 17' ^s	36° 43' ["]	0° 53'	38° 44' ^s	43° 27' ["]	1° 15'	11° 05' ^s	9° 43' ["]	0° 71'
Nov. 7	62° 53' ^s	35° 90' ["]	0° 41'	38° 74' ^s	42° 12' ["]	1° 29'	11° 39' ^s	8° 72' ["]	0° 68'
17	62° 88' ^s	35° 49' ["]	0° 27'	39° 04' ^s	40° 83' ["]	1° 40'	11° 74' ^s	8° 09' ["]	0° 53'
27	63° 22' ^s	35° 22' ["]	0° 10'	39° 33' ^s	39° 43' ["]	1° 43'	12° 06' ^s	7° 56' ["]	0° 37'
Dec. 7	63° 53' ^s	35° 12' ["]	0° 07'	39° 59' ^s	38° 00' ["]	1° 42'	12° 37' ^s	7° 19' ["]	0° 21'
17	63° 80' ^s	35° 19' ["]	0° 26'	39° 83' ^s	36° 58' ["]	1° 36'	12° 65' ^s	6° 98' ["]	0° 08'
27	64° 03' ^s	35° 45' ["]	0° 44'	40° 02' ^s	35° 22' ["]	1° 25'	12° 88' ^s	6° 95' ["]	0° 15'
37	64° 22' ^s	35° 89' ["]		40° 18' ^s	33° 97' ["]		13° 07' ^s	7° 10' ["]	

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	15 Argus.		e Hydræ.		+ Ursæ Majoris.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 8 0	^m 23 49	^h 8 37	^m 7 1	^h 8 47	^m 48 40
Jan. 1	29° 19' 0.14	44° 20' 2.76	59° 06' 0.20	23° 74' 1.28	48° 63' 0.29	69° 96' 1.05
11	29° 33' 0.08	46° 96' 2.65	59° 26' 0.14	22° 46' 1.10	48° 92' 0.22	71° 01' 1.36
21	29° 41' 0.04	49° 61' 2.48	59° 40' 0.10	21° 36' 0.89	49° 14' 0.15	72° 37' 1.60
31	29° 45' 0.02	52° 09' 2.23	59° 50' 0.05	20° 47' 0.68	49° 29' 0.08	73° 97' 1.78
Feb. 10	29° 43' 0.07	54° 32' 1.96	59° 55' 0.00	19° 79' 0.47	49° 37' 0.01	75° 75' 1.86
20	29° 36' 0.11	56° 28' 1.63	59° 55' 0.05	19° 32' 0.27	49° 38' 0.06	77° 61' 1.87
Mar. 2	29° 25' 0.14	57° 91' 1.30	59° 50' 0.08	19° 05' 0.10	49° 32' 0.12	79° 48' 1.79
12	29° 11' 0.17	59° 21' 0.95	59° 42' 0.12	18° 95' 0.05	49° 20' 0.17	81° 27' 1.64
22	28° 94' 0.18	60° 16' 0.58	59° 30' 0.13	19° 00' 0.19	49° 03' 0.21	82° 91' 1.42
April 1	28° 76' 0.19	60° 74' 0.21	59° 17' 0.15	19° 19' 0.30	48° 82' 0.23	84° 33' 1.14
11	28° 57' 0.19	60° 95' 0.13	59° 02' 0.15	19° 49' 0.38	48° 59' 0.24	85° 47' 0.83
21	28° 38' 0.18	60° 82' 0.50	58° 87' 0.14	19° 87' 0.45	48° 35' 0.23	86° 30' 0.49
May 1	28° 20' 0.16	60° 32' 0.83	58° 73' 0.14	20° 32' 0.52	48° 12' 0.22	86° 79' 0.14
11	28° 04' 0.14	59° 49' 1.14	58° 59' 0.11	20° 84' 0.56	47° 90' 0.20	86° 93' 0.19
21	27° 90' 0.11	58° 35' 1.44	58° 48' 0.09	21° 40' 0.60	47° 70' 0.17	86° 74' 0.53
31	27° 79' 0.08	56° 91' 1.69	58° 39' 0.06	22° 00' 0.63	47° 53' 0.13	86° 21' 0.83
June 10	27° 71' 0.04	55° 22' 1.91	58° 33' 0.04	22° 63' 0.64	47° 40' 0.08	85° 38' 1.11
20	27° 67' 0.01	53° 31' 2.08	58° 29' 0.01	23° 27' 0.66	47° 32' 0.04	84° 27' 1.35
30	27° 66' 0.02	51° 23' 2.19	58° 28' 0.03	23° 93' 0.63	47° 28' 0.01	82° 92' 1.54
July 10	27° 68' 0.06	49° 04' 2.25	58° 31' 0.05	24° 56' 0.60	47° 29' 0.05	81° 38' 1.72
20	27° 74' 0.11	46° 79' 2.44	58° 36' 0.08	25° 16' 0.54	47° 34' 0.10	79° 66' 1.85
30	27° 85' 0.13	44° 35' 2.12	58° 44' 0.12	25° 70' 0.48	47° 44' 0.16	77° 81' 2.15
Aug. 9	27° 98' 0.16	42° 23' 1.94	58° 56' 0.15	26° 18' 0.31	47° 60' 0.19	75° 66' 2.02
19	28° 14' 0.19	40° 29' 1.70	58° 71' 0.16	26° 49' 0.15	47° 79' 0.24	73° 64' 2.05
29	28° 33' 0.22	38° 59' 1.36	58° 87' 0.20	26° 64' 0.03	48° 03' 0.27	71° 59' 2.05
Sept. 8	28° 55' 0.25	37° 23' 0.99	59° 07' 0.22	26° 61' 0.24	48° 30' 0.31	69° 54' 2.00
18	28° 80' 0.26	36° 24' 0.54	59° 29' 0.24	26° 37' 0.48	48° 61' 0.35	67° 54' 1.93
28	29° 06' 0.29	35° 70' 0.07	59° 53' 0.27	25° 89' 0.71	48° 96' 0.38	65° 61' 1.82
Oct. 8	29° 35' 0.30	35° 63' 0.42	59° 80' 0.29	25° 18' 0.92	49° 34' 0.41	63° 79' 1.65
18	29° 65' 0.32	36° 05' 0.92	60° 09' 0.30	24° 26' 1.16	49° 75' 0.43	62° 14' 1.46
28	29° 97' 0.31	36° 97' 1.38	60° 39' 0.31	23° 10' 1.34	50° 18' 0.46	60° 68' 1.21
Nov. 7	30° 28' 0.32	38° 35' 1.80	60° 70' 0.32	21° 76' 1.48	50° 64' 0.45	59° 47' 0.93
17	30° 60' 0.30	40° 15' 2.17	61° 02' 0.32	20° 28' 1.57	51° 09' 0.46	58° 54' 0.60
27	30° 90' 0.28	42° 32' 2.46	61° 34' 0.31	18° 71' 1.61	51° 55' 0.44	57° 94' 0.25
Dec. 7	31° 18' 0.25	44° 78' 2.66	61° 65' 0.28	17° 10' 1.59	51° 99' 0.42	57° 69' 0.13
17	31° 43' 0.20	47° 44' 2.78	61° 93' 0.26	15° 51' 1.51	52° 41' 0.37	57° 82' 0.51
27	31° 63' 0.17	50° 22' 2.80	62° 19' 0.22	14° 00' 1.39	52° 78' 0.33	58° 33' 0.85
37	31° 80' 0.17	53° 02' 2.80	62° 41' 0.22	12° 61' 1.39	53° 11' 0.33	59° 18' 0.85

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	♈ Argus.		♉ HYDRÆ.		♊ Ursæ Majoris.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']	^h 9 12 ^m 58 34 ^s 19 19 [°] 7 56 ['] 9 21 [°] 52 25 [']
n. 1	43° 04'	38° 91'	25° 95'	28° 06'	42° 90'	37° 08'
11	43° 29'	42° 47'	26° 18'	30° 22'	43° 25'	38° 04'
21	43° 47'	46° 17'	26° 35'	32° 27'	43° 53'	39° 37'
31	43° 56'	49° 90'	26° 48'	34° 15'	43° 74'	41° 01'
	0° 02'	3° 67'	0° 08'	1° 67'	0° 14'	1° 89'
Feb. 10	43° 58'	53° 57'	26° 56'	35° 82'	43° 88'	42° 90'
20	43° 51'	57° 07'	26° 59'	37° 26'	43° 93'	44° 94'
Mar. 2	43° 37'	60° 34'	26° 57'	38° 45'	43° 91'	47° 04'
12	43° 16'	63° 29'	26° 52'	39° 38'	43° 82'	49° 11'
	0° 26'	2° 59'	0° 09'	0° 69'	0° 14'	1° 93'
22	42° 90'	65° 88'	26° 43'	40° 07'	43° 68'	51° 04'
April 1	42° 59'	68° 03'	26° 31'	40° 50'	43° 48'	52° 80'
11	42° 26'	69° 75'	26° 18'	40° 70'	43° 25'	54° 28'
21	41° 90'	70° 97'	26° 04'	40° 68'	43° 00'	55° 43'
	0° 37'	0° 72'	0° 14'	0° 23'	0° 25'	0° 80'
May 1	41° 53'	71° 69'	25° 90'	40° 45'	42° 75'	56° 23'
11	41° 17'	71° 90'	25° 76'	40° 02'	42° 50'	56° 64'
21	40° 81'	71° 60'	25° 63'	39° 41'	42° 26'	56° 66'
31	40° 48'	70° 79'	25° 53'	38° 63'	42° 06'	56° 31'
	0° 31'	1° 28'	0° 10'	0° 92'	0° 18'	0° 72'
June 10	40° 17'	69° 51'	25° 43'	37° 71'	41° 88'	55° 59'
20	39° 90'	67° 77'	25° 36'	36° 66'	41° 75'	54° 53'
30	39° 68'	65° 65'	25° 32'	35° 51'	41° 65'	53° 15'
July 10	39° 49'	63° 18'	25° 30'	34° 30'	41° 61'	51° 51'
	0° 12'	2° 73'	0° 01'	1° 25'	0° 00'	1° 87'
20	39° 37'	60° 45'	25° 31'	33° 05'	41° 61'	49° 64'
30	39° 30'	57° 50'	25° 34'	31° 82'	41° 65'	47° 56'
Aug. 9	39° 30'	54° 48'	25° 40'	30° 64'	41° 75'	45° 34'
19	39° 37'	51° 15'	25° 50'	29° 48'	41° 91'	42° 76'
	0° 13'	2° 91'	0° 12'	0° 89'	0° 19'	2° 42'
29	39° 50'	48° 24'	25° 62'	28° 59'	42° 10'	40° 34'
Sept. 8	39° 70'	45° 56'	25° 77'	27° 92'	42° 34'	37° 89'
18	39° 97'	43° 20'	25° 95'	27° 52'	42° 63'	35° 46'
28	40° 29'	41° 27'	26° 16'	27° 43'	42° 96'	33° 09'
	0° 38'	1° 42'	0° 24'	0° 24'	0° 37'	2° 27'
Oct. 8	40° 67'	39° 85'	26° 40'	27° 67'	43° 33'	30° 82'
18	41° 10'	39° 00'	26° 66'	28° 26'	43° 74'	28° 71'
28	41° 56'	38° 78'	26° 95'	29° 20'	44° 18'	26° 81'
Nov. 7	42° 04'	39° 21'	27° 26'	30° 49'	44° 64'	25° 18'
	0° 49'	1° 07'	0° 31'	1° 59'	0° 49'	1° 33'
17	42° 53'	40° 28'	27° 57'	32° 08'	45° 13'	23° 85'
27	43° 01'	41° 97'	27° 89'	33° 92'	45° 62'	22° 90'
Dec. 7	43° 47'	44° 24'	28° 21'	35° 97'	46° 10'	22° 34'
17	43° 88'	46° 99'	28° 51'	38° 14'	46° 57'	22° 20'
	0° 37'	3° 16'	0° 27'	2° 23'	0° 43'	0° 31'
27	44° 25'	50° 15'	28° 78'	40° 37'	47° 00'	22° 51'
37	44° 54'	53° 61'	29° 02'	42° 60'	47° 39'	23° 23'

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	ϵ Leonis.		α LEONIS.		γ Argus.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 9 ^m 36	^o 24 ⁱ 31	^h 9 ^m 59	^o 12 ⁱ 46	^h 10 ^m 38	^o 58 ⁱ 48
Jan. 1	24 ^s 96 ^s	63 ^u 39 ^u	31 ^s 42 ^s	34 ^u 07 ^u	39 ^s 17 ^s	24 ^u 44 ^u
11	25 23 0 ^u 27	62 80 0 ^u 59	31 68 0 ^u 26	32 76 1 ^u 31	39 56 0 ^u 39	27 55 3 ^u 11
21	25 45 0 ^u 22	62 51 0 ^u 29	31 91 0 ^u 23	31 70 1 ^u 06	39 50 0 ^u 34	30 91 3 ^u 36
31	25 62 0 ^u 17	62 51 0 ^u 00	32 09 0 ^u 18	30 91 0 ^u 79	40 16 0 ^u 26	34 48 3 ^u 57
	0 ^u 12	0 ^u 27	0 ^u 13	0 ^u 52	0 ^u 19	3 ^u 67
Feb. 10	25 74	62 78	32 22	30 39	40 35	38 15
20	25 81 0 ^u 07	63 29 0 ^u 51	32 30 0 ^u 08	30 12 0 ^u 27	40 46 0 ^u 11	41 84 3 ^u 69
Mar. 2	25 82 0 ^u 01	63 97 0 ^u 68	32 34 0 ^u 04	30 09 0 ^u 03	40 49 0 ^u 03	45 45 3 ^u 61
12	25 79 0 ^u 03	64 80 0 ^u 83	32 33 0 ^u 01	30 27 0 ^u 18	40 45 0 ^u 04	48 91 3 ^u 46
	0 ^u 08	0 ^u 92	0 ^u 05	0 ^u 35	0 ^u 10	3 ^u 22
22	25 71	65 72	32 28	30 62	40 35	52 13
April 1	25 61 0 ^u 10	66 66 0 ^u 94	32 20 0 ^u 08	31 10 0 ^u 48	40 19 0 ^u 16	55 06 2 ^u 93
11	25 48 0 ^u 13	67 58 0 ^u 92	32 09 0 ^u 11	31 67 0 ^u 57	39 98 0 ^u 21	57 64 2 ^u 58
21	25 34 0 ^u 14	68 44 0 ^u 86	31 98 0 ^u 11	32 29 0 ^u 62	39 73 0 ^u 25	59 83 2 ^u 19
	0 ^u 15	0 ^u 76	0 ^u 13	0 ^u 64	0 ^u 29	1 ^u 76
May 1	25 19	69 20	31 85	32 93	39 44	61 59
11	25 05 0 ^u 14	69 83 0 ^u 63	31 72 0 ^u 13	33 56 0 ^u 63	39 14 0 ^u 30	62 88 1 ^u 29
21	24 91 0 ^u 14	70 33 0 ^u 50	31 60 0 ^u 12	34 17 0 ^u 61	38 82 0 ^u 32	63 69 0 ^u 81
31	24 79 0 ^u 12	70 68 0 ^u 35	31 49 0 ^u 11	34 73 0 ^u 56	38 50 0 ^u 32	64 00 0 ^u 31
	0 ^u 10	0 ^u 19	0 ^u 10	0 ^u 50	0 ^u 33	0 ^u 19
June 10	24 69	70 87	31 39	35 23	38 17	63 81
20	24 62 0 ^u 07	70 90 0 ^u 03	31 31 0 ^u 08	35 67 0 ^u 44	37 86 0 ^u 31	63 13 0 ^u 63
30	24 57 0 ^u 05	70 79 0 ^u 11	31 25 0 ^u 06	36 02 0 ^u 35	37 57 0 ^u 29	61 99 1 ^u 14
July 10	24 55 0 ^u 02	70 51 0 ^u 28	31 22 0 ^u 03	36 29 0 ^u 27	37 31 0 ^u 26	60 40 1 ^u 59
	0 ^u 00	0 ^u 42	0 ^u 01	0 ^u 16	0 ^u 24	1 ^u 99
20	24 55 0 ^u 04	70 09 0 ^u 57	31 21 0 ^u 01	36 45 0 ^u 05	37 07 0 ^u 19	58 41 2 ^u 31
30	24 59 0 ^u 06	69 52 0 ^u 71	31 22 0 ^u 03	36 50 0 ^u 07	36 88 0 ^u 14	56 10 2 ^u 57
Aug. 9	24 65 0 ^u 11	68 81 0 ^u 96	31 25 0 ^u 06	36 43 0 ^u 21	36 74 0 ^u 08	53 53 2 ^u 76
19	24 76 0 ^u 12	67 85 1 ^u 03	31 31 0 ^u 11	36 22 0 ^u 43	36 66 0 ^u 02	50 77 2 ^u 84
	0 ^u 16	1 ^u 17	0 ^u 12	0 ^u 58	0 ^u 05	3 ^u 09
29	24 88	66 82	31 42	35 79	36 64	47 93
Sept. 8	25 04 0 ^u 16	65 65 1 ^u 31	31 54 0 ^u 15	35 21 0 ^u 77	36 69 0 ^u 13	44 84 2 ^u 66
18	25 23 0 ^u 19	64 34 1 ^u 44	31 69 0 ^u 19	34 44 0 ^u 97	36 82 0 ^u 19	42 18 2 ^u 42
28	25 45 0 ^u 22	62 90 1 ^u 56	31 88 0 ^u 22	33 47 1 ^u 19	37 01 0 ^u 27	39 76 2 ^u 07
	0 ^u 25	1 ^u 65	0 ^u 24	1 ^u 37	0 ^u 34	1 ^u 63
Oct. 8	25 70	61 34	32 10	32 28	37 28	37 69
18	25 98 0 ^u 28	59 69 1 ^u 70	32 34 0 ^u 28	30 91 1 ^u 55	37 62 0 ^u 40	36 06 1 ^u 11
28	26 29 0 ^u 33	57 99 1 ^u 73	32 62 0 ^u 30	29 36 1 ^u 68	38 02 0 ^u 45	34 95 0 ^u 52
Nov. 7	26 62 0 ^u 35	56 26 1 ^u 68	32 92 0 ^u 32	27 68 1 ^u 79	38 47 0 ^u 48	34 43 0 ^u 09
	0 ^u 35	1 ^u 60	0 ^u 34	1 ^u 83	0 ^u 51	0 ^u 72
17	26 97	54 58	33 24	25 89	38 95	34 52
27	27 32 0 ^u 36	52 98 1 ^u 46	33 58 0 ^u 33	24 06 1 ^u 83	39 46 0 ^u 51	35 24 1 ^u 34
Dec. 7	27 68 0 ^u 34	51 52 1 ^u 26	33 91 0 ^u 33	22 23 1 ^u 75	39 97 0 ^u 50	36 58 1 ^u 92
17	28 02 0 ^u 32	50 26 1 ^u 03	34 24 0 ^u 32	20 48 1 ^u 61	40 47 0 ^u 47	38 50 2 ^u 44
	0 ^u 29	0 ^u 76	0 ^u 29	1 ^u 44	0 ^u 43	2 ^u 90
27	28 34	49 23	34 56	18 87	40 94	40 94
37	28 63	48 47	34 85	17 43	41 37	43 84

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

834.	α URSAE MAJORIS.		δ LEONIS.		δ Hydræ et Crat.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 10 ^m 53	^o 62 ['] 38	^h 11 ^m 5	^o 21 ['] 25	^h 11 ^m 11	^o 13 ['] 52
Jan. 1	25° 03' 00"	33° 78' 00"	15° 88' 00"	55° 20' 00"	2° 39' 00"	41° 54' 00"
11	25° 58' 00"	34° 21' 00"	16° 20' 00"	53° 89' 00"	2° 68' 00"	43° 91' 00"
21	26° 08' 00"	35° 20' 00"	16° 49' 00"	52° 95' 00"	2° 95' 00"	46° 26' 00"
31	26° 50' 00"	36° 68' 00"	16° 74' 00"	52° 36' 00"	3° 18' 00"	48° 54' 00"
Feb. 10	26° 84' 00"	38° 60' 00"	16° 94' 00"	52° 13' 00"	3° 37' 00"	50° 67' 00"
20	27° 08' 00"	40° 87' 00"	17° 10' 00"	52° 23' 00"	3° 51' 00"	52° 62' 00"
Mar. 2	27° 23' 00"	43° 38' 00"	17° 20' 00"	52° 62' 00"	3° 61' 00"	54° 36' 00"
12	27° 29' 00"	46° 03' 00"	17° 26' 00"	53° 28' 00"	3° 67' 00"	55° 86' 00"
22	27° 25' 00"	48° 69' 00"	17° 28' 00"	54° 13' 00"	3° 68' 00"	57° 11' 00"
Apr. 1	27° 13' 00"	51° 27' 00"	17° 25' 00"	55° 12' 00"	3° 66' 00"	58° 10' 00"
11	26° 94' 00"	53° 66' 00"	17° 20' 00"	56° 19' 00"	3° 61' 00"	58° 85' 00"
21	26° 69' 00"	55° 77' 00"	17° 11' 00"	57° 29' 00"	3° 54' 00"	59° 36' 00"
May 1	26° 40' 00"	57° 53' 00"	17° 02' 00"	58° 36' 00"	3° 45' 00"	59° 64' 00"
11	26° 08' 00"	58° 88' 00"	16° 50' 00"	59° 37' 00"	3° 35' 00"	59° 70' 00"
21	25° 75' 00"	59° 77' 00"	16° 79' 00"	60° 26' 00"	3° 24' 00"	59° 55' 00"
31	25° 41' 00"	60° 19' 00"	16° 67' 00"	61° 01' 00"	3° 13' 00"	59° 21' 00"
June 10	25° 09' 00"	60° 13' 00"	16° 56' 00"	61° 60' 00"	3° 02' 00"	58° 69' 00"
20	24° 79' 00"	59° 58' 00"	16° 45' 00"	62° 03' 00"	2° 91' 00"	58° 00' 00"
30	24° 52' 00"	58° 58' 00"	16° 36' 00"	62° 26' 00"	2° 81' 00"	57° 17' 00"
July 10	24° 28' 00"	57° 13' 00"	16° 28' 00"	62° 30' 00"	2° 73' 00"	56° 22' 00"
20	24° 09' 00"	55° 29' 00"	16° 21' 00"	62° 15' 00"	2° 65' 00"	55° 18' 00"
30	23° 95' 00"	53° 08' 00"	16° 16' 00"	61° 79' 00"	2° 59' 00"	54° 08' 00"
Aug. 9	23° 86' 00"	50° 57' 00"	16° 14' 00"	61° 23' 00"	2° 55' 00"	52° 96' 00"
19	23° 84' 00"	47° 78' 00"	16° 14' 00"	60° 47' 00"	2° 53' 00"	51° 87' 00"
29	23° 87' 00"	44° 78' 00"	16° 16' 00"	59° 50' 00"	2° 54' 00"	50° 85' 00"
Sept. 8	23° 97' 00"	41° 28' 00"	16° 23' 00"	58° 18' 00"	2° 57' 00"	49° 97' 00"
18	24° 14' 00"	38° 02' 00"	16° 31' 00"	56° 77' 00"	2° 65' 00"	49° 22' 00"
28	24° 37' 00"	34° 71' 00"	16° 44' 00"	55° 16' 00"	2° 76' 00"	48° 80' 00"
Oct. 8	24° 68' 00"	31° 45' 00"	16° 61' 00"	53° 37' 00"	2° 91' 00"	48° 66' 00"
18	25° 02' 00"	28° 30' 00"	16° 81' 00"	51° 42' 00"	3° 10' 00"	48° 86' 00"
28	25° 49' 00"	25° 32' 00"	17° 05' 00"	49° 33' 00"	3° 33' 00"	49° 40' 00"
Nov. 7	25° 98' 00"	22° 60' 00"	17° 32' 00"	47° 16' 00"	3° 59' 00"	50° 31' 00"
17	26° 53' 00"	20° 21' 00"	17° 63' 00"	44° 95' 00"	3° 88' 00"	51° 57' 00"
27	27° 11' 00"	18° 23' 00"	17° 96' 00"	42° 77' 00"	4° 20' 00"	53° 16' 00"
Dec. 7	27° 72' 00"	16° 71' 00"	18° 31' 00"	40° 67' 00"	4° 53' 00"	55° 05' 00"
17	28° 34' 00"	15° 71' 00"	18° 66' 00"	38° 73' 00"	4° 87' 00"	57° 16' 00"
27	28° 95' 00"	15° 27' 00"	19° 01' 00"	37° 01' 00"	5° 20' 00"	59° 44' 00"
37	29° 53' 00"	15° 38' 00"	19° 35' 00"	35° 56' 00"	5° 51' 00"	61° 82' 00"

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β LEONIS.		γ URSÆ MAJORIS.		β Chamæleonis.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. Sou.
	^h 11 ^m 40	[°] 15 ['] 29	^h 11 ^m 45	[°] 54 ['] 36	^h 12 ^m 8	[°] 78 ['] 2
Jan. 1	34° 63' 0.32	60° 51' 1.65	3° 18' 0.48	54° 44' 0.47	47° 63' 1.12	55° 32' 1.12
11	34° 95' 0.30	58° 86' 1.37	3° 66' 0.46	53° 97' 0.09	48° 75' 1.02	57° 17' 0.92
21	35° 25' 0.26	57° 49' 0.69	4° 12' 0.40	54° 06' 0.66	49° 77' 0.77	59° 57' 0.66
31	35° 51' 0.23	56° 45' 0.35	4° 52' 0.35	54° 72' 1.18	50° 69' 0.77	62° 40' 0.77
Feb. 10	35° 74' 0.18	55° 76' 0.36	4° 87' 0.28	55° 90' 1.62	51° 46' 0.62	65° 63' 0.62
20	35° 92' 0.14	55° 40' 0.04	5° 15' 0.21	57° 52' 2.00	52° 08' 0.46	69° 13' 0.46
Mar. 2	36° 06' 0.09	55° 36' 0.26	5° 36' 0.14	59° 52' 2.29	52° 54' 0.29	72° 82' 0.29
12	36° 15' 0.05	55° 62' 0.50	5° 50' 0.06	61° 81' 2.45	52° 83' 0.13	76° 64' 0.13
22	36° 20' 0.01	56° 12' 0.70	5° 56' 0.00	64° 26' 2.52	52° 96' 0.03	80° 46' 0.03
April 1	36° 21' 0.02	56° 82' 0.84	5° 56' 0.07	66° 78' 2.49	52° 93' 0.19	84° 22' 0.19
11	36° 19' 0.05	57° 66' 0.93	5° 49' 0.12	69° 27' 2.34	52° 74' 0.33	87° 84' 0.33
21	36° 14' 0.07	58° 59' 0.98	5° 37' 0.16	71° 61' 2.13	52° 41' 0.47	91° 24' 0.47
May 1	36° 07' 0.09	59° 57' 0.96	5° 21' 0.20	73° 74' 1.82	51° 94' 0.59	94° 36' 0.59
11	35° 98' 0.09	60° 53' 0.92	5° 01' 0.22	75° 56' 1.48	51° 35' 0.70	97° 14' 0.70
21	35° 89' 0.11	61° 45' 0.84	4° 79' 0.24	77° 04' 1.06	50° 65' 0.79	99° 51' 0.79
31	35° 78' 0.10	62° 29' 0.73	4° 55' 0.24	78° 10' 0.63	49° 86' 0.86	101° 43' 0.86
June 10	35° 68' 0.10	63° 02' 0.60	4° 31' 0.24	78° 73' 0.19	49° 00' 0.92	102° 85' 0.92
20	35° 58' 0.11	63° 62' 0.46	4° 07' 0.23	78° 92' 0.27	48° 08' 0.93	103° 76' 0.93
30	35° 47' 0.09	64° 08' 0.30	3° 84' 0.21	78° 65' 0.74	47° 15' 0.95	104° 12' 0.95
July 10	35° 38' 0.08	64° 38' 0.14	3° 63' 0.19	77° 91' 1.13	46° 20' 0.91	103° 91' 0.91
20	35° 30' 0.07	64° 52' 0.05	3° 44' 0.17	76° 78' 1.56	45° 29' 0.87	103° 18' 0.87
30	35° 23' 0.05	64° 47' 0.23	3° 27' 0.13	75° 22' 1.94	44° 42' 0.79	101° 92' 0.79
Aug. 9	35° 18' 0.04	64° 24' 0.43	3° 14' 0.10	73° 28' 2.27	43° 63' 0.67	100° 18' 0.67
19	35° 14' 0.01	63° 81' 0.64	3° 04' 0.06	71° 01' 2.58	42° 96' 0.55	98° 02' 0.55
29	35° 13' 0.01	63° 17' 0.86	2° 98' 0.01	68° 43' 2.84	42° 41' 0.38	95° 49' 0.38
Sept. 8	35° 14' 0.06	62° 31' 1.19	2° 97' 0.05	65° 59' 3.36	42° 03' 0.20	92° 71' 0.20
18	35° 20' 0.08	61° 12' 1.33	3° 02' 0.10	62° 23' 3.21	41° 83' 0.00	89° 75' 0.00
28	35° 28' 0.12	59° 79' 1.55	3° 12' 0.16	59° 02' 3.31	41° 83' 0.22	86° 45' 0.22
Oct. 8	35° 40' 0.17	58° 24' 1.75	3° 28' 0.22	55° 71' 3.33	42° 05' 0.42	83° 53' 0.42
18	35° 57' 0.20	56° 49' 1.95	3° 50' 0.28	52° 38' 3.29	42° 47' 0.61	80° 79' 0.61
28	35° 77' 0.24	54° 54' 2.09	3° 78' 0.34	49° 09' 3.14	43° 08' 0.78	78° 36' 0.78
Nov. 7	36° 01' 0.28	52° 45' 2.20	4° 12' 0.39	45° 95' 2.93	43° 86' 0.94	76° 36' 0.94
17	36° 29' 0.30	50° 25' 2.26	4° 51' 0.44	43° 02' 2.66	44° 80' 1.06	74° 86' 1.06
27	36° 59' 0.33	47° 99' 2.24	4° 95' 0.48	40° 36' 2.28	45° 86' 1.14	73° 94' 1.14
Dec. 7	36° 92' 0.34	45° 75' 2.17	5° 43' 0.50	38° 08' 1.85	47° 00' 1.18	73° 61' 1.18
17	37° 26' 0.34	43° 58' 2.01	5° 93' 0.50	36° 23' 1.32	48° 18' 1.19	73° 96' 1.19
27	37° 60' 0.35	41° 57' 1.82	6° 43' 0.50	34° 91' 0.79	49° 37' 1.15	74° 93' 1.15
37	37° 95' 0.35	39° 75' 1.82	6° 93' 0.50	34° 12' 0.79	50° 52' 1.15	76° 52' 1.15

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α^2 Crucis.		β Corvi.		12 Canum Venat.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 12 ^m 17 ^s	^o 62 ^m 10 ^s	^h 12 ^m 25 ^s	^o 22 ^m 28 ^s	^h 12 ^m 48 ^s	^o 39 ^m 12 ^s
Jan. 1	24 ^h 90 ^m 0 ^s	20 ^o 08 ^m 0 ^s	40 ^h 02 ^m 0 ^s	23 ^o 42 ^m 0 ^s	14 ^h 23 ^m 0 ^s	52 ^o 44 ^m 0 ^s
11	25 ^h 45 ^m 0 ^s	22 ^o 12 ^m 0 ^s	40 ^h 36 ^m 0 ^s	25 ^o 66 ^m 0 ^s	14 ^h 62 ^m 0 ^s	50 ^o 88 ^m 0 ^s
21	25 ^h 97 ^m 0 ^s	24 ^o 60 ^m 0 ^s	40 ^h 68 ^m 0 ^s	28 ^o 00 ^m 0 ^s	15 ^h 01 ^m 0 ^s	49 ^o 80 ^m 0 ^s
31	26 ^h 43 ^m 0 ^s	27 ^o 48 ^m 0 ^s	40 ^h 97 ^m 0 ^s	30 ^o 39 ^m 0 ^s	15 ^h 37 ^m 0 ^s	49 ^o 27 ^m 0 ^s
Feb. 10	26 ^h 83 ^m 0 ^s	30 ^o 65 ^m 0 ^s	41 ^h 23 ^m 0 ^s	32 ^o 75 ^m 0 ^s	15 ^h 69 ^m 0 ^s	49 ^o 26 ^m 0 ^s
20	27 ^h 16 ^m 0 ^s	34 ^o 02 ^m 0 ^s	41 ^h 44 ^m 0 ^s	35 ^o 02 ^m 0 ^s	15 ^h 98 ^m 0 ^s	49 ^o 76 ^m 0 ^s
Mar. 2	27 ^h 42 ^m 0 ^s	37 ^o 52 ^m 0 ^s	41 ^h 62 ^m 0 ^s	37 ^o 17 ^m 0 ^s	16 ^h 21 ^m 0 ^s	50 ^o 73 ^m 0 ^s
12	27 ^h 60 ^m 0 ^s	41 ^o 06 ^m 0 ^s	41 ^h 76 ^m 0 ^s	39 ^o 15 ^m 0 ^s	16 ^h 40 ^m 0 ^s	52 ^o 11 ^m 0 ^s
22	27 ^h 71 ^m 0 ^s	44 ^o 57 ^m 0 ^s	41 ^h 86 ^m 0 ^s	40 ^o 93 ^m 0 ^s	16 ^h 54 ^m 0 ^s	53 ^o 81 ^m 0 ^s
April 1	27 ^h 75 ^m 0 ^s	47 ^o 96 ^m 0 ^s	41 ^h 92 ^m 0 ^s	42 ^o 49 ^m 0 ^s	16 ^h 62 ^m 0 ^s	55 ^o 75 ^m 0 ^s
11	27 ^h 72 ^m 0 ^s	51 ^o 17 ^m 0 ^s	41 ^h 94 ^m 0 ^s	43 ^o 83 ^m 0 ^s	16 ^h 66 ^m 0 ^s	57 ^o 85 ^m 0 ^s
21	27 ^h 63 ^m 0 ^s	54 ^o 15 ^m 0 ^s	41 ^h 94 ^m 0 ^s	44 ^o 93 ^m 0 ^s	16 ^h 66 ^m 0 ^s	60 ^o 00 ^m 0 ^s
May 1	27 ^h 49 ^m 0 ^s	56 ^o 84 ^m 0 ^s	41 ^h 90 ^m 0 ^s	45 ^o 80 ^m 0 ^s	16 ^h 62 ^m 0 ^s	62 ^o 12 ^m 0 ^s
11	27 ^h 30 ^m 0 ^s	59 ^o 17 ^m 0 ^s	41 ^h 85 ^m 0 ^s	46 ^o 44 ^m 0 ^s	16 ^h 55 ^m 0 ^s	64 ^o 13 ^m 0 ^s
21	27 ^h 06 ^m 0 ^s	61 ^o 13 ^m 0 ^s	41 ^h 78 ^m 0 ^s	46 ^o 85 ^m 0 ^s	16 ^h 45 ^m 0 ^s	65 ^o 95 ^m 0 ^s
31	26 ^h 79 ^m 0 ^s	62 ^o 67 ^m 0 ^s	41 ^h 69 ^m 0 ^s	47 ^o 03 ^m 0 ^s	16 ^h 33 ^m 0 ^s	67 ^o 53 ^m 0 ^s
June 10	26 ^h 49 ^m 0 ^s	63 ^o 73 ^m 0 ^s	41 ^h 59 ^m 0 ^s	46 ^o 98 ^m 0 ^s	16 ^h 19 ^m 0 ^s	68 ^o 81 ^m 0 ^s
20	26 ^h 16 ^m 0 ^s	64 ^o 34 ^m 0 ^s	41 ^h 49 ^m 0 ^s	46 ^o 72 ^m 0 ^s	16 ^h 04 ^m 0 ^s	69 ^o 76 ^m 0 ^s
30	25 ^h 82 ^m 0 ^s	64 ^o 45 ^m 0 ^s	41 ^h 37 ^m 0 ^s	46 ^o 26 ^m 0 ^s	15 ^h 88 ^m 0 ^s	70 ^o 35 ^m 0 ^s
July 10	25 ^h 48 ^m 0 ^s	64 ^o 07 ^m 0 ^s	41 ^h 25 ^m 0 ^s	45 ^o 60 ^m 0 ^s	15 ^h 72 ^m 0 ^s	70 ^o 56 ^m 0 ^s
20	25 ^h 14 ^m 0 ^s	63 ^o 21 ^m 0 ^s	41 ^h 14 ^m 0 ^s	44 ^o 77 ^m 0 ^s	15 ^h 56 ^m 0 ^s	70 ^o 39 ^m 0 ^s
30	24 ^h 82 ^m 0 ^s	61 ^o 91 ^m 0 ^s	41 ^h 03 ^m 0 ^s	43 ^o 79 ^m 0 ^s	15 ^h 41 ^m 0 ^s	69 ^o 84 ^m 0 ^s
Aug. 9	24 ^h 52 ^m 0 ^s	60 ^o 20 ^m 0 ^s	40 ^h 92 ^m 0 ^s	42 ^o 70 ^m 0 ^s	15 ^h 27 ^m 0 ^s	68 ^o 93 ^m 0 ^s
19	24 ^h 27 ^m 0 ^s	58 ^o 13 ^m 0 ^s	40 ^h 84 ^m 0 ^s	41 ^o 54 ^m 0 ^s	15 ^h 15 ^m 0 ^s	67 ^o 63 ^m 0 ^s
29	24 ^h 06 ^m 0 ^s	55 ^o 77 ^m 0 ^s	40 ^h 77 ^m 0 ^s	40 ^o 35 ^m 0 ^s	15 ^h 05 ^m 0 ^s	65 ^o 99 ^m 0 ^s
Sept. 8	23 ^h 92 ^m 0 ^s	53 ^o 22 ^m 0 ^s	40 ^h 73 ^m 0 ^s	39 ^o 19 ^m 0 ^s	14 ^h 97 ^m 0 ^s	64 ^o 02 ^m 0 ^s
18	23 ^h 86 ^m 0 ^s	50 ^o 55 ^m 0 ^s	40 ^h 72 ^m 0 ^s	38 ^o 12 ^m 0 ^s	14 ^h 93 ^m 0 ^s	61 ^o 75 ^m 0 ^s
28	23 ^h 88 ^m 0 ^s	47 ^o 62 ^m 0 ^s	40 ^h 76 ^m 0 ^s	37 ^o 19 ^m 0 ^s	14 ^h 92 ^m 0 ^s	59 ^o 20 ^m 0 ^s
Oct. 8	23 ^h 99 ^m 0 ^s	45 ^o 08 ^m 0 ^s	40 ^h 83 ^m 0 ^s	36 ^o 43 ^m 0 ^s	14 ^h 97 ^m 0 ^s	56 ^o 14 ^m 0 ^s
18	24 ^h 19 ^m 0 ^s	42 ^o 77 ^m 0 ^s	40 ^h 96 ^m 0 ^s	36 ^o 01 ^m 0 ^s	15 ^h 07 ^m 0 ^s	53 ^o 16 ^m 0 ^s
28	24 ^h 48 ^m 0 ^s	40 ^o 78 ^m 0 ^s	41 ^h 13 ^m 0 ^s	35 ^o 91 ^m 0 ^s	15 ^h 22 ^m 0 ^s	50 ^o 06 ^m 0 ^s
Nov. 7	24 ^h 85 ^m 0 ^s	39 ^o 21 ^m 0 ^s	41 ^h 34 ^m 0 ^s	36 ^o 16 ^m 0 ^s	15 ^h 42 ^m 0 ^s	46 ^o 90 ^m 0 ^s
17	25 ^h 30 ^m 0 ^s	38 ^o 15 ^m 0 ^s	41 ^h 60 ^m 0 ^s	36 ^o 78 ^m 0 ^s	15 ^h 67 ^m 0 ^s	43 ^o 75 ^m 0 ^s
27	25 ^h 80 ^m 0 ^s	37 ^o 63 ^m 0 ^s	41 ^h 90 ^m 0 ^s	37 ^o 79 ^m 0 ^s	15 ^h 96 ^m 0 ^s	40 ^o 71 ^m 0 ^s
Dec. 7	26 ^h 35 ^m 0 ^s	37 ^o 70 ^m 0 ^s	42 ^o 22 ^m 0 ^s	39 ^o 15 ^m 0 ^s	16 ^h 30 ^m 0 ^s	37 ^o 83 ^m 0 ^s
17	26 ^h 93 ^m 0 ^s	38 ^o 39 ^m 0 ^s	42 ^o 56 ^m 0 ^s	40 ^o 83 ^m 0 ^s	16 ^h 67 ^m 0 ^s	35 ^o 25 ^m 0 ^s
27	27 ^h 51 ^m 0 ^s	39 ^o 63 ^m 0 ^s	42 ^o 91 ^m 0 ^s	42 ^o 78 ^m 0 ^s	17 ^h 06 ^m 0 ^s	33 ^o 00 ^m 0 ^s
37	28 ^h 08 ^m 0 ^s	41 ^o 43 ^m 0 ^s	43 ^o 26 ^m 0 ^s	44 ^o 97 ^m 0 ^s	17 ^h 46 ^m 0 ^s	31 ^o 16 ^m 0 ^s

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α VIRGINIS.		η URSE MAJORIS.		η Bootis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 13 ^m 16	^o 10 ⁱ 17	^h 13 ^m 40	^o 50 ⁱ 8	^h 13 ^m 46	^o 19 ⁱ 13
Jan. 1	26° 22' 0.00	21° 80' 2.06	57° 95' 0.44	30° 59' 1.90	45° 69' 0.33	59° 59' 2.17
11	26° 56' 0.34	23° 86' 2.06	58° 39' 0.45	28° 69' 1.36	46° 02' 0.34	57° 42' 1.85
21	26° 88' 0.32	25° 92' 1.98	58° 84' 0.43	27° 33' 0.75	46° 36' 0.33	55° 57' 1.49
31	27° 19' 0.28	27° 90' 1.87	59° 27' 0.41	26° 58' 0.13	46° 69' 0.30	54° 08' 1.08
Feb. 10	27° 47' 0.25	29° 77' 1.69	59° 68' 0.38	26° 45' 0.46	46° 99' 0.28	53° 00' 0.65
20	27° 72' 0.22	31° 46' 1.49	60° 06' 0.33	26° 91' 1.03	47° 27' 0.25	52° 35' 0.22
Mar. 2	27° 94' 0.18	32° 95' 1.27	60° 39' 0.28	27° 94' 1.53	47° 52' 0.21	52° 13' 0.19
12	28° 12' 0.15	34° 22' 1.05	60° 67' 0.22	29° 47' 1.96	47° 73' 0.18	52° 32' 0.55
22	28° 27' 0.11	35° 27' 0.82	60° 89' 0.16	31° 43' 2.28	47° 91' 0.14	52° 87' 0.87
April 1	28° 38' 0.08	36° 09' 0.60	61° 05' 0.11	33° 71' 2.50	48° 05' 0.11	53° 74' 1.15
11	28° 46' 0.05	36° 69' 0.40	61° 16' 0.05	36° 21' 2.63	48° 16' 0.07	54° 89' 1.33
21	28° 51' 0.02	37° 09' 0.22	61° 21' 0.00	38° 84' 2.64	48° 23' 0.04	56° 22' 1.45
May 1	28° 53' 0.00	37° 31' 0.07	61° 21' 0.05	41° 48' 2.57	48° 27' 0.01	57° 67' 1.50
11	28° 53' 0.03	37° 38' 0.08	61° 16' 0.09	44° 05' 2.37	48° 28' 0.02	59° 17' 1.51
21	28° 50' 0.04	37° 30' 0.19	61° 07' 0.13	46° 42' 2.13	48° 26' 0.04	60° 68' 1.42
31	28° 46' 0.07	37° 11' 0.30	60° 94' 0.16	48° 55' 1.82	48° 22' 0.06	62° 10' 1.32
June 10	28° 39' 0.08	36° 81' 0.39	60° 78' 0.19	50° 37' 1.44	48° 16' 0.08	63° 42' 1.17
20	28° 31' 0.09	36° 42' 0.47	60° 59' 0.20	51° 81' 1.01	48° 08' 0.10	64° 59' 0.97
30	28° 22' 0.10	35° 95' 0.52	60° 39' 0.23	52° 82' 0.59	47° 98' 0.11	65° 56' 0.75
July 10	28° 12' 0.11	35° 43' 0.57	60° 16' 0.23	53° 41' 0.13	47° 87' 0.12	66° 31' 0.52
20	28° 01' 0.11	34° 86' 0.60	59° 93' 0.23	53° 54' 0.33	47° 75' 0.13	66° 83' 0.26
30	27° 90' 0.11	34° 26' 0.61	59° 70' 0.24	53° 21' 0.80	47° 62' 0.13	67° 09' 0.00
Aug. 9	27° 79' 0.11	33° 65' 0.59	59° 46' 0.22	52° 41' 1.25	47° 49' 0.13	67° 09' 0.28
19	27° 68' 0.09	33° 06' 0.55	59° 24' 0.20	51° 16' 1.67	47° 36' 0.11	66° 81' 0.55
29	27° 59' 0.07	32° 51' 0.46	59° 04' 0.18	49° 49' 2.09	47° 25' 0.11	66° 26' 0.84
Sept. 8	27° 52' 0.05	32° 05' 0.35	58° 86' 0.15	47° 40' 2.46	47° 14' 0.08	65° 42' 1.12
18	27° 47' 0.02	31° 70' 0.19	58° 71' 0.10	44° 94' 2.79	47° 06' 0.05	64° 30' 1.41
28	27° 45' 0.02	31° 51' 0.01	58° 61' 0.05	42° 15' 3.09	47° 01' 0.02	62° 89' 1.68
Oct. 8	27° 47' 0.07	31° 52' 0.27	58° 56' 0.01	39° 06' 3.68	46° 99' 0.02	61° 21' 1.95
18	27° 54' 0.12	31° 79' 0.52	58° 57' 0.07	35° 38' 3.50	47° 01' 0.08	59° 26' 2.41
28	27° 66' 0.16	32° 31' 0.80	58° 64' 0.13	31° 88' 3.59	47° 09' 0.13	56° 85' 2.41
Nov. 7	27° 82' 0.20	33° 11' 1.07	58° 77' 0.20	28° 29' 3.59	47° 22' 0.16	54° 44' 2.56
17	28° 02' 0.25	34° 18' 1.35	58° 97' 0.27	24° 70' 3.51	47° 38' 0.22	51° 88' 2.67
27	28° 27' 0.29	35° 53' 1.60	59° 24' 0.32	21° 19' 3.33	47° 60' 0.26	49° 21' 2.70
Dec. 7	28° 56' 0.31	37° 13' 1.82	59° 56' 0.37	17° 86' 3.04	47° 86' 0.29	46° 51' 2.64
17	28° 87' 0.33	38° 95' 1.94	59° 93' 0.40	14° 82' 2.66	48° 15' 0.32	43° 87' 2.53
27	29° 20' 0.33	40° 89' 2.06	60° 33' 0.44	12° 16' 2.20	48° 47' 0.34	41° 34' 2.33
37	29° 53' 0.33	42° 95' 2.06	60° 77' 0.44	9° 96' 2.20	48° 81' 0.34	39° 01' 2.33

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β Centauri.				α Bootis.				α^2 Centauri.			
	R. A.		Dec. South.		R. A.		Dec. North.		R. A.		Dec. South.	
	^h 13	^m 52	^o 59	^f 33	^h 14	^m 8	^o 20	^f 2	^h 14	^m 28	^o 60	^f 8
Jan. 1	9 ^s 04 ^s		43 ^o 56 ^o		4 ^s 09 ^s		59 ^o 86 ^o		24 ^s 53 ^s		17 ^o 46 ^o	
11	9 60	0 ^s 56	44 46	0 ^o 90	4 42	0 ^s 33	57 55	2 ^o 31	25 09	0 ^s 56	17 87	0 ^o 41
21	10 15	0 ^s 55	45 85	1 ^o 39	4 75	0 ^s 33	55 54	2 ^o 01	25 66	0 ^s 57	18 74	0 ^o 87
31	10 69	0 ^s 54	47 64	1 ^o 79	5 08	0 ^s 33	53 92	1 ^o 62	26 22	0 ^s 56	20 06	1 ^o 32
		0 ^s 50		2 ^o 19		0 ^s 31		1 ^o 21		0 ^s 55		1 ^o 72
Feb. 10	11 19		49 83		5 39		52 71		26 77		21 78	
20	11 66	0 ^s 47	52 32	2 ^o 49	5 68	0 ^s 29	51 94	0 ^o 77	27 28	0 ^s 51	23 83	2 ^o 05
Mar. 2	12 07	0 ^s 41	55 06	2 ^o 74	5 94	0 ^s 26	51 61	0 ^o 33	27 75	0 ^s 47	26 19	2 ^o 36
12	12 43	0 ^s 36	57 97	2 ^o 91	6 17	0 ^s 23	51 71	0 ^o 10	28 18	0 ^s 43	28 77	2 ^o 58
		0 ^s 31		3 ^o 02		0 ^s 19		0 ^o 49		0 ^s 38		2 ^o 74
22	12 74		60 99		6 36		52 20		28 56		31 51	
April 1	12 99	0 ^s 25	64 06	3 ^o 07	6 52	0 ^s 16	53 05	0 ^o 35	28 88	0 ^s 32	34 35	2 ^o 84
11	13 16	0 ^s 17	67 12	3 ^o 06	6 65	0 ^s 13	54 18	1 ^o 13	29 14	0 ^s 26	37 26	2 ^o 91
21	13 29	0 ^s 13	70 10	2 ^o 98	6 74	0 ^s 09	55 50	1 ^o 32	29 34	0 ^s 20	40 15	2 ^o 89
		0 ^s 07		2 ^o 85		0 ^s 06		1 ^o 48		0 ^s 15		2 ^o 84
May 1	13 36		72 95		6 80		56 98		29 49		42 99	
11	13 37	0 ^s 01	75 62	2 ^o 67	6 82	0 ^s 02	58 53	1 ^o 55	29 57	0 ^s 08	45 71	2 ^o 72
21	13 32	0 ^s 05	78 08	2 ^o 46	6 82	0 ^s 00	60 09	1 ^o 56	29 60	0 ^s 03	48 28	2 ^o 57
31	13 22	0 ^s 10	80 23	2 ^o 15	6 79	0 ^s 03	61 59	1 ^o 50	29 56	0 ^s 04	50 63	2 ^o 35
		0 ^s 15		1 ^o 85		0 ^s 05		1 ^o 39		0 ^s 09		2 ^o 09
June 10	13 07		82 08		6 74		62 98		29 47		52 72	
20	12 88	0 ^s 19	83 56	1 ^o 48	6 67	0 ^s 07	64 21	1 ^o 23	29 32	0 ^s 15	54 50	1 ^o 78
30	12 64	0 ^s 24	84 64	1 ^o 08	6 58	0 ^s 09	65 25	1 ^o 04	29 12	0 ^s 20	55 93	1 ^o 43
July 10	12 37	0 ^s 27	85 31	0 ^o 67	6 47	0 ^s 11	66 07	0 ^o 82	28 88	0 ^s 24	56 98	1 ^o 05
		0 ^s 29		0 ^o 24		0 ^s 13		0 ^o 57		0 ^s 28		0 ^o 64
20	12 08	0 ^s 31	85 55	0 ^o 23	6 34	0 ^s 14	66 64	0 ^o 31	28 60	0 ^s 31	57 62	0 ^o 20
30	11 77	0 ^s 32	85 32	0 ^o 67	6 20	0 ^s 14	66 95	0 ^o 03	28 29	0 ^s 33	57 82	0 ^o 23
Aug. 9	11 45	0 ^s 31	84 65	1 ^o 07	6 06	0 ^s 14	66 98	0 ^o 26	27 96	0 ^s 33	57 59	0 ^o 67
19	11 14	0 ^s 29	83 58	1 ^o 47	5 92	0 ^s 13	66 72	0 ^o 54	27 63	0 ^s 32	56 92	1 ^o 08
		0 ^s 25		1 ^o 81		0 ^s 13		0 ^o 84		0 ^s 29		1 ^o 46
Sept. 8	10 85	0 ^s 25	82 11	2 ^o 07	5 79	0 ^s 10	66 18	1 ^o 16	27 02	0 ^s 26	54 38	1 ^o 79
18	10 60	0 ^s 21	80 30	2 ^o 25	5 66	0 ^s 07	65 34	1 ^o 43	26 76	0 ^s 20	52 59	2 ^o 04
28	10 39	0 ^s 14	78 23	2 ^o 36	5 56	0 ^s 04	64 18	1 ^o 72	26 56	0 ^s 13	50 55	2 ^o 21
		0 ^s 07		2 ^o 36		0 ^s 01		2 ^o 01		0 ^s 05		2 ^o 31
Oct. 8	10 18	0 ^s 02	73 62	2 ^o 46	5 45	0 ^s 05	61 03	2 ^o 49	26 43	0 ^s 03	48 34	2 ^o 28
18	10 20	0 ^s 11	71 26	2 ^o 01	5 44	0 ^s 10	59 02	2 ^o 48	26 38	0 ^s 15	46 03	2 ^o 38
28	10 31	0 ^s 20	68 80	1 ^o 72	5 49	0 ^s 14	56 53	2 ^o 66	26 41	0 ^s 23	43 75	1 ^o 93
Nov. 7	10 51	0 ^s 29	66 79	1 ^o 32	5 59	0 ^s 20	54 05	2 ^o 76	26 56	0 ^s 32	41 37	1 ^o 61
		0 ^s 37		0 ^o 89		0 ^s 24		2 ^o 81		0 ^s 39		1 ^o 23
Dec. 7	10 80	0 ^s 43	65 07	0 ^o 36	5 73	0 ^s 27	48 63	2 ^o 78	27 11	0 ^s 47	37 83	0 ^o 81
17	11 17	0 ^s 49	63 75	0 ^o 13	5 93	0 ^s 31	45 82	2 ^o 66	27 50	0 ^s 51	36 60	0 ^o 32
		0 ^s 54		0 ^o 67		0 ^s 32		2 ^o 47		0 ^s 55		0 ^o 17
27	12 09	0 ^s 54	62 86		6 17		43 04		27 97		35 79	
37	12 63	0 ^s 55	62 63		6 44							
	13 18		63 30		7 07							

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	ε BOOTIS.		α ² LIBRÆ.		β URSE MINORIS.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 14 ^m 37	^o 27 ⁱ 46	^h 14 ^m 41	^o 15 ⁱ 20	^h 14 ^m 51	^o 74 ⁱ 49
Jan. 1	42° 62' 0" 33	37° 86' 0" 44	40° 80' 0" 32	37° 59' 0" 64	13° 36' 0" 80	51° 30' 0" 31
11	42° 95' 0" 34	35° 42' 0" 07	41° 12' 0" 34	39° 23' 0" 71	14° 16' 0" 86	48° 99' 0" 76
21	43° 29' 0" 34	33° 35' 0" 65	41° 46' 0" 32	40° 94' 0" 71	15° 02' 0" 91	47° 23' 0" 12
31	43° 63' 0" 34	31° 70' 0" 16	41° 78' 0" 32	42° 65' 0" 67	15° 93' 0" 92	46° 11' 0" 45
Feb. 10	43° 97' 0" 31	30° 54' 0" 66	42° 10' 0" 31	44° 32' 0" 57	16° 85' 0" 89	45° 66' 0" 24
20	44° 28' 0" 29	29° 88' 0" 15	42° 41' 0" 28	45° 89' 0" 44	17° 74' 0" 84	45° 90' 0" 87
Mar. 2	44° 57' 0" 27	29° 73' 0" 34	42° 69' 0" 25	47° 33' 0" 37	18° 58' 0" 76	46° 77' 0" 49
12	44° 84' 0" 22	30° 07' 0" 80	42° 94' 0" 23	48° 60' 0" 12	19° 34' 0" 65	48° 26' 0" 01
22	45° 06' 0" 20	30° 87' 0" 19	43° 17' 0" 19	49° 72' 0" 92	19° 99' 0" 53	50° 27' 0" 45
April 1	45° 26' 0" 16	32° 06' 0" 52	43° 36' 0" 17	50° 64' 0" 74	20° 52' 0" 40	52° 72' 0" 78
11	45° 42' 0" 12	33° 58' 0" 93	43° 53' 0" 14	51° 38' 0" 57	20° 92' 0" 25	55° 50' 0" 99
21	45° 54' 0" 09	35° 36' 0" 11	43° 67' 0" 11	51° 95' 0" 42	21° 17' 0" 11	58° 49' 0" 09
May 1	45° 63' 0" 05	37° 29' 0" 03	43° 78' 0" 08	52° 37' 0" 28	21° 28' 0" 04	61° 58' 0" 09
11	45° 68' 0" 02	39° 32' 0" 03	43° 86' 0" 05	52° 65' 0" 16	21° 24' 0" 16	64° 67' 0" 95
21	45° 70' 0" 01	41° 35' 0" 96	43° 91' 0" 03	52° 81' 0" 05	21° 08' 0" 31	67° 62' 0" 74
31	45° 69' 0" 04	43° 31' 0" 83	43° 94' 0" 01	52° 86' 0" 04	20° 77' 0" 41	70° 36' 0" 43
June 10	45° 65' 0" 07	45° 14' 0" 63	43° 93' 0" 03	52° 82' 0" 12	20° 36' 0" 52	72° 79' 0" 05
20	45° 58' 0" 09	46° 77' 0" 40	43° 90' 0" 05	52° 70' 0" 19	19° 84' 0" 61	74° 84' 0" 63
30	45° 49' 0" 12	48° 17' 0" 13	43° 85' 0" 08	52° 51' 0" 26	19° 23' 0" 68	76° 47' 0" 19
July 10	45° 37' 0" 14	49° 30' 0" 82	43° 77' 0" 10	52° 25' 0" 33	18° 55' 0" 73	77° 65' 0" 60
20	45° 23' 0" 15	50° 12' 0" 49	43° 67' 0" 12	51° 92' 0" 37	17° 82' 0" 77	78° 25' 0" 12
30	45° 08' 0" 16	50° 61' 0" 15	43° 55' 0" 13	51° 55' 0" 43	17° 05' 0" 78	78° 37' 0" 42
Aug. 9	44° 92' 0" 16	50° 76' 0" 20	43° 42' 0" 14	51° 12' 0" 45	16° 27' 0" 79	77° 95' 0" 95
19	44° 76' 0" 17	50° 56' 0" 55	43° 28' 0" 14	50° 67' 0" 47	15° 48' 0" 76	77° 00' 0" 44
29	44° 59' 0" 15	50° 01' 0" 92	43° 14' 0" 14	50° 20' 0" 45	14° 72' 0" 73	75° 56' 0" 94
Sept. 8	44° 44' 0" 14	49° 09' 0" 26	43° 00' 0" 12	49° 75' 0" 43	13° 99' 0" 67	73° 62' 0" 38
18	44° 30' 0" 11	47° 83' 0" 61	42° 88' 0" 09	49° 32' 0" 36	13° 32' 0" 59	71° 24' 0" 88
28	44° 19' 0" 08	46° 22' 0" 93	42° 79' 0" 05	48° 96' 0" 23	12° 73' 0" 50	68° 36' 0" 09
Oct. 8	44° 11' 0" 04	44° 29' 0" 23	42° 74' 0" 03	48° 73' 0" 09	12° 23' 0" 38	65° 27' 0" 47
18	44° 07' 0" 00	42° 06' 0" 51	42° 71' 0" 03	48° 64' 0" 11	11° 85' 0" 25	61° 80' 0" 69
28	44° 07' 0" 07	39° 55' 0" 03	42° 74' 0" 09	48° 75' 0" 32	11° 60' 0" 12	58° 11' 0" 24
Nov. 7	44° 14' 0" 11	36° 52' 0" 93	42° 83' 0" 13	49° 07' 0" 56	11° 48' 0" 06	53° 87' 0" 91
17	44° 25' 0" 17	33° 59' 0" 03	42° 96' 0" 18	49° 63' 0" 80	11° 54' 0" 20	49° 96' 0" 77
27	44° 42' 0" 21	30° 56' 0" 06	43° 14' 0" 23	50° 43' 0" 05	11° 74' 0" 37	46° 19' 0" 82
Dec. 7	44° 63' 0" 26	27° 50' 0" 00	43° 37' 0" 26	51° 48' 0" 26	12° 11' 0" 50	42° 37' 0" 45
17	44° 89' 0" 30	24° 50' 0" 85	43° 63' 0" 30	52° 74' 0" 46	12° 61' 0" 63	38° 92' 0" 10
27	45° 19' 0" 32	21° 65' 0" 62	43° 93' 0" 32	54° 20' 0" 61	13° 24' 0" 76	35° 82' 0" 65
37	45° 51' 0" 32	19° 03' 0" 62	44° 25' 0" 32	55° 81' 0" 61	14° 00' 0" 76	33° 17' 0" 65

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β Libræ.		α CORONÆ BOREALIS.		α SERPENTIS.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 15 ^m 8	^o 8 ⁱ 45	^h 15 ^m 27	^o 27 ⁱ 16	^h 15 ^m 36	^o 6 ⁱ 56
Jan. 1	3 ^s 24 ^s 0 ^s 31	46 ^h 84 ^h 1 ^h 73	37 ^s 83 ^s 0 ^s 30	38 ^h 59 ^h 2 ^h 65	3 ^s 89 ^s 0 ^s 28	75 ^h 31 ^h 2 ^h 26
11	3 ^s 55 ^s 0 ^s 32	48 ^h 57 ^h 1 ^h 72	38 ^s 13 ^s 0 ^s 32	35 ^h 94 ^h 2 ^h 34	4 ^s 17 ^s 0 ^s 30	73 ^h 05 ^h 2 ^h 02
21	3 ^s 87 ^s 0 ^s 32	50 ^h 29 ^h 1 ^h 67	38 ^s 45 ^s 0 ^s 33	33 ^h 60 ^h 1 ^h 93	4 ^s 47 ^s 0 ^s 31	71 ^h 03 ^h 1 ^h 81
31	4 ^s 19 ^s 0 ^s 31	51 ^h 96 ^h 1 ^h 54	38 ^s 78 ^s 0 ^s 33	31 ^h 67 ^h 1 ^h 48	4 ^s 78 ^s 0 ^s 31	69 ^h 22 ^h 1 ^h 53
Feb. 10	4 ^s 50 ^s 0 ^s 31	53 ^h 50 ^h 1 ^h 40	39 ^s 11 ^s 0 ^s 32	30 ^h 19 ^h 0 ^h 98	5 ^s 09 ^s 0 ^s 31	67 ^h 69 ^h 1 ^h 21
20	4 ^s 81 ^s 0 ^s 29	54 ^h 90 ^h 1 ^h 19	39 ^s 43 ^s 0 ^s 32	29 ^h 21 ^h 0 ^h 45	5 ^s 40 ^s 0 ^s 29	66 ^h 48 ^h 0 ^h 87
Mar. 2	5 ^s 10 ^s 0 ^s 26	56 ^h 09 ^h 0 ^h 97	39 ^s 75 ^s 0 ^s 29	28 ^h 76 ^h 0 ^h 07	5 ^s 69 ^s 0 ^s 27	65 ^h 61 ^h 0 ^h 50
12	5 ^s 36 ^s 0 ^s 24	57 ^h 06 ^h 0 ^h 75	40 ^s 04 ^s 0 ^s 26	28 ^h 83 ^h 0 ^h 56	5 ^s 96 ^s 0 ^s 25	65 ^h 11 ^h 0 ^h 14
22	5 ^s 60 ^s 0 ^s 22	57 ^h 81 ^h 0 ^h 53	40 ^s 30 ^s 0 ^s 24	29 ^h 39 ^h 1 ^h 00	6 ^s 21 ^s 0 ^s 23	64 ^h 97 ^h 0 ^h 19
April 1	5 ^s 82 ^s 0 ^s 18	58 ^h 34 ^h 0 ^h 32	40 ^s 54 ^s 0 ^s 20	30 ^h 39 ^h 1 ^h 40	6 ^s 44 ^s 0 ^s 21	65 ^h 16 ^h 0 ^h 50
11	6 ^s 00 ^s 0 ^s 16	58 ^h 66 ^h 0 ^h 13	40 ^s 74 ^s 0 ^s 17	31 ^h 79 ^h 1 ^h 70	6 ^s 65 ^s 0 ^s 17	65 ^h 66 ^h 0 ^h 76
21	6 ^s 16 ^s 0 ^s 13	58 ^h 79 ^h 0 ^h 03	40 ^s 91 ^s 0 ^s 14	33 ^h 49 ^h 1 ^h 94	6 ^s 82 ^s 0 ^s 15	66 ^h 42 ^h 0 ^h 96
May 1	6 ^s 29 ^s 0 ^s 11	58 ^h 76 ^h 0 ^h 16	41 ^s 05 ^s 0 ^s 10	35 ^h 43 ^h 2 ^h 10	6 ^s 97 ^s 0 ^s 12	67 ^h 38 ^h 1 ^h 12
11	6 ^s 40 ^s 0 ^s 07	58 ^h 60 ^h 0 ^h 27	41 ^s 15 ^s 0 ^s 07	37 ^h 53 ^h 2 ^h 16	7 ^s 09 ^s 0 ^s 10	68 ^h 50 ^h 1 ^h 21
21	6 ^s 47 ^s 0 ^s 05	58 ^h 33 ^h 0 ^h 34	41 ^s 22 ^s 0 ^s 04	39 ^h 69 ^h 2 ^h 18	7 ^s 19 ^s 0 ^s 06	69 ^h 71 ^h 1 ^h 25
31	6 ^s 52 ^s 0 ^s 02	57 ^h 99 ^h 0 ^h 39	41 ^s 26 ^s 0 ^s 00	41 ^h 87 ^h 2 ^h 03	7 ^s 25 ^s 0 ^s 03	70 ^h 96 ^h 1 ^h 25
June 10	6 ^s 54 ^s 0 ^s 01	57 ^h 60 ^h 0 ^h 42	41 ^s 26 ^s 0 ^s 03	43 ^h 90 ^h 1 ^h 92	7 ^s 28 ^s 0 ^s 00	72 ^h 21 ^h 1 ^h 20
20	6 ^s 53 ^s 0 ^s 04	57 ^h 18 ^h 0 ^h 44	41 ^s 23 ^s 0 ^s 07	45 ^h 82 ^h 1 ^h 72	7 ^s 28 ^s 0 ^s 03	73 ^h 41 ^h 1 ^h 11
30	6 ^s 49 ^s 0 ^s 07	56 ^h 74 ^h 0 ^h 44	41 ^s 16 ^s 0 ^s 09	47 ^h 54 ^h 1 ^h 47	7 ^s 25 ^s 0 ^s 05	74 ^h 52 ^h 0 ^h 99
July 10	6 ^s 42 ^s 0 ^s 09	56 ^h 30 ^h 0 ^h 43	41 ^s 07 ^s 0 ^s 12	49 ^h 01 ^h 1 ^h 19	7 ^s 20 ^s 0 ^s 09	75 ^h 51 ^h 0 ^h 85
20	6 ^s 33 ^s 0 ^s 11	55 ^h 87 ^h 0 ^h 41	40 ^s 95 ^s 0 ^s 14	50 ^h 20 ^h 0 ^h 86	7 ^s 11 ^s 0 ^s 11	76 ^h 36 ^h 0 ^h 69
30	6 ^s 22 ^s 0 ^s 13	55 ^h 46 ^h 0 ^h 39	40 ^s 81 ^s 0 ^s 17	51 ^h 06 ^h 0 ^h 54	7 ^s 00 ^s 0 ^s 13	77 ^h 03 ^h 0 ^h 52
Aug. 9	6 ^s 09 ^s 0 ^s 14	55 ^h 07 ^h 0 ^h 35	40 ^s 64 ^s 0 ^s 17	51 ^h 60 ^h 0 ^h 16	6 ^s 87 ^s 0 ^s 14	77 ^h 57 ^h 0 ^h 32
19	5 ^s 95 ^s 0 ^s 14	54 ^h 72 ^h 0 ^h 30	40 ^s 47 ^s 0 ^s 19	51 ^h 76 ^h 0 ^h 18	6 ^s 73 ^s 0 ^s 15	77 ^h 89 ^h 0 ^h 16
29	5 ^s 81 ^s 0 ^s 14	54 ^h 42 ^h 0 ^h 23	40 ^s 28 ^s 0 ^s 18	51 ^h 58 ^h 0 ^h 56	6 ^s 58 ^s 0 ^s 16	78 ^h 05 ^h 0 ^h 13
Sept. 8	5 ^s 67 ^s 0 ^s 13	54 ^h 19 ^h 0 ^h 15	40 ^s 10 ^s 0 ^s 17	51 ^h 02 ^h 0 ^h 92	6 ^s 42 ^s 0 ^s 15	77 ^h 92 ^h 0 ^h 31
18	5 ^s 54 ^s 0 ^s 11	54 ^h 04 ^h 0 ^h 03	39 ^s 93 ^s 0 ^s 15	50 ^h 10 ^h 1 ^h 30	6 ^s 27 ^s 0 ^s 13	77 ^h 61 ^h 0 ^h 55
28	5 ^s 43 ^s 0 ^s 08	54 ^h 01 ^h 0 ^h 10	39 ^s 78 ^s 0 ^s 13	48 ^h 80 ^h 1 ^h 65	6 ^s 14 ^s 0 ^s 10	77 ^h 06 ^h 0 ^h 78
Oct. 8	5 ^s 35 ^s 0 ^s 04	54 ^h 11 ^h 0 ^h 27	39 ^s 65 ^s 0 ^s 09	47 ^h 15 ^h 1 ^h 97	6 ^s 04 ^s 0 ^s 08	76 ^h 28 ^h 1 ^h 04
18	5 ^s 31 ^s 0 ^s 01	54 ^h 38 ^h 0 ^h 46	39 ^s 56 ^s 0 ^s 05	45 ^h 18 ^h 2 ^h 30	5 ^s 96 ^s 0 ^s 03	75 ^h 24 ^h 1 ^h 28
28	5 ^s 32 ^s 0 ^s 03	54 ^h 84 ^h 0 ^h 66	39 ^s 51 ^s 0 ^s 00	42 ^h 88 ^h 2 ^h 57	5 ^s 93 ^s 0 ^s 01	73 ^h 96 ^h 1 ^h 52
Nov. 7	5 ^s 35 ^s 0 ^s 11	55 ^h 50 ^h 0 ^h 98	39 ^s 51 ^s 0 ^s 06	40 ^h 31 ^h 3 ^h 09	5 ^s 94 ^s 0 ^s 07	72 ^h 44 ^h 1 ^h 93
17	5 ^s 46 ^s 0 ^s 15	56 ^h 48 ^h 1 ^h 11	39 ^s 57 ^s 0 ^s 11	37 ^h 22 ^h 2 ^h 97	6 ^s 01 ^s 0 ^s 11	70 ^h 51 ^h 1 ^h 96
27	5 ^s 61 ^s 0 ^s 20	57 ^h 59 ^h 1 ^h 32	39 ^s 68 ^s 0 ^s 16	34 ^h 25 ^h 3 ^h 07	6 ^s 12 ^s 0 ^s 16	68 ^h 55 ^h 2 ^h 11
Dec. 7	5 ^s 81 ^s 0 ^s 24	58 ^h 91 ^h 1 ^h 50	39 ^s 84 ^s 0 ^s 21	31 ^h 18 ^h 3 ^h 06	6 ^s 28 ^s 0 ^s 21	66 ^h 44 ^h 2 ^h 22
17	6 ^s 05 ^s 0 ^s 27	60 ^h 41 ^h 1 ^h 63	40 ^s 05 ^s 0 ^s 25	28 ^h 12 ^h 2 ^h 98	6 ^s 49 ^s 0 ^s 24	64 ^h 22 ^h 2 ^h 25
27	6 ^s 32 ^s 0 ^s 30	62 ^h 04 ^h 1 ^h 72	40 ^s 30 ^s 0 ^s 29	25 ^h 14 ^h 2 ^h 80	6 ^s 73 ^s 0 ^s 28	61 ^h 97 ^h 2 ^h 23
37	6 ^s 62 ^s 0 ^s 30	63 ^h 76 ^h 1 ^h 72	40 ^s 59 ^s 0 ^s 29	22 ^h 34 ^h 2 ^h 80	7 ^s 01 ^s 0 ^s 28	59 ^h 74 ^h 2 ^h 23

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	ζ Ursæ Minoris.		β ¹ Scorpii.		δ OPHIUCHI.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	15 ^h 50 ^m	78 ^o 17 ⁱ	15 ^h 55 ^m	19 ^o 20 ⁱ	16 ^h 5 ^m	3 ^o 15 ⁱ
Jan. 1	4 ^s 85 ^s	55 ^o 54 ⁱ	45 ^s 65 ^s	29 ^o 33 ⁱ	37 ^s 15 ^s	32 ^o 58 ⁱ
11	5 ^s 64 ^s 0 ^s 79 ^s	52 ^o 65 ⁱ 2 ⁱ 89 ⁱ	45 ^s 95 ^s 0 ^s 30 ^s	30 ^o 42 ⁱ 1 ⁱ 09 ⁱ	37 ^s 42 ^s 0 ^s 27 ^s	34 ^o 32 ⁱ 1 ⁱ 74 ⁱ
21	6 ^s 58 ^s 0 ^s 94 ^s	50 ^o 24 ⁱ 2 ⁱ 41 ⁱ	46 ^s 27 ^s 0 ^s 32 ^s	31 ^o 62 ⁱ 1 ⁱ 20 ⁱ	37 ^s 71 ^s 0 ^s 29 ^s	36 ^o 01 ⁱ 1 ⁱ 69 ⁱ
31	7 ^s 62 ^s 1 ^s 04 ^s	48 ^o 43 ⁱ 1 ⁱ 81 ⁱ	46 ^s 59 ^s 0 ^s 32 ^s	32 ^o 85 ⁱ 1 ⁱ 23 ⁱ	38 ^s 02 ^s 0 ^s 31 ^s	37 ^o 60 ⁱ 1 ⁱ 59 ⁱ
	1 ^s 11 ^s	1 ^s 20 ^s	0 ^s 33 ^s	1 ^s 25 ^s	0 ^s 31 ^s	1 ^s 43 ^s
Feb. 10	8 ^s 73 ^s	47 ^o 23 ⁱ	46 ^s 92 ^s	34 ^o 10 ⁱ	38 ^s 33 ^s	39 ^o 03 ⁱ
20	9 ^s 86 ^s 1 ^s 13 ^s	46 ^o 71 ⁱ 0 ⁱ 52 ⁱ	47 ^s 24 ^s 0 ^s 32 ^s	35 ^o 30 ⁱ 1 ⁱ 20 ⁱ	38 ^s 63 ^s 0 ^s 30 ^s	40 ^o 23 ⁱ 1 ⁱ 20 ⁱ
Mar. 2	10 ^s 98 ^s 1 ^s 12 ^s	46 ^o 86 ⁱ 0 ⁱ 15 ⁱ	47 ^s 56 ^s 0 ^s 32 ^s	36 ^o 43 ⁱ 1 ⁱ 13 ⁱ	38 ^s 93 ^s 0 ^s 30 ^s	41 ^o 21 ⁱ 0 ⁱ 98 ⁱ
12	12 ^s 05 ^s 1 ^s 07 ^s	47 ^o 67 ⁱ 0 ⁱ 81 ⁱ	47 ^s 86 ^s 0 ^s 30 ^s	37 ^o 46 ⁱ 1 ⁱ 03 ⁱ	39 ^s 21 ^s 0 ^s 28 ^s	41 ^o 91 ⁱ 0 ⁱ 70 ⁱ
	0 ^s 98 ^s	1 ^s 40 ^s	0 ^s 28 ^s	0 ^s 91 ^s	0 ^s 27 ^s	0 ^s 43 ^s
April 22	13 ^s 03 ^s 0 ^s 86 ^s	49 ^o 07 ⁱ 1 ⁱ 94 ⁱ	48 ^s 14 ^s 0 ^s 27 ^s	38 ^o 37 ⁱ 0 ⁱ 77 ⁱ	39 ^s 48 ^s 0 ^s 25 ^s	42 ^o 34 ⁱ 0 ⁱ 17 ⁱ
11	13 ^s 89 ^s 0 ^s 71 ^s	51 ^o 01 ⁱ 2 ⁱ 39 ⁱ	48 ^s 41 ^s 0 ^s 23 ^s	39 ^o 14 ⁱ 0 ⁱ 65 ⁱ	39 ^s 73 ^s 0 ^s 23 ^s	42 ^o 51 ⁱ 0 ⁱ 08 ⁱ
21	14 ^s 60 ^s 0 ^s 54 ^s	53 ^o 40 ⁱ 2 ⁱ 73 ⁱ	48 ^s 64 ^s 0 ^s 22 ^s	39 ^o 79 ⁱ 0 ⁱ 52 ⁱ	39 ^s 96 ^s 0 ^s 21 ^s	42 ^o 43 ⁱ 0 ⁱ 30 ⁱ
	0 ^s 36 ^s	2 ^s 97 ^s	0 ^s 18 ^s	0 ^s 42 ^s	0 ^s 18 ^s	0 ^s 48 ^s
May 1	15 ^s 50 ^s 0 ^s 18 ^s	59 ^o 10 ⁱ 3 ⁱ 10 ⁱ	49 ^s 04 ^s 0 ^s 16 ^s	40 ^o 73 ⁱ 0 ⁱ 33 ⁱ	40 ^s 35 ^s 0 ^s 15 ^s	41 ^o 65 ⁱ 0 ⁱ 62 ⁱ
11	15 ^s 68 ^s 0 ^s 00 ^s	62 ^o 20 ⁱ 3 ⁱ 11 ⁱ	49 ^s 20 ^s 0 ^s 13 ^s	41 ^o 06 ⁱ 0 ⁱ 24 ⁱ	40 ^s 50 ^s 0 ^s 13 ^s	41 ^o 03 ⁱ 0 ⁱ 72 ⁱ
21	15 ^s 68 ^s 0 ^s 19 ^s	65 ^o 31 ⁱ 3 ⁱ 03 ⁱ	49 ^s 33 ^s 0 ^s 10 ^s	41 ^o 30 ⁱ 0 ⁱ 18 ⁱ	40 ^s 63 ^s 0 ^s 10 ^s	40 ^o 31 ⁱ 0 ⁱ 77 ⁱ
31	15 ^s 49 ^s 0 ^s 36 ^s	68 ^o 34 ⁱ 2 ⁱ 84 ⁱ	49 ^s 43 ^s 0 ^s 06 ^s	41 ^o 48 ⁱ 0 ⁱ 13 ⁱ	40 ^s 73 ^s 0 ^s 06 ^s	39 ^o 54 ⁱ 0 ⁱ 80 ⁱ
June 10	15 ^s 13 ^s 0 ^s 53 ^s	71 ^o 18 ⁱ 2 ⁱ 57 ⁱ	49 ^s 49 ^s 0 ^s 04 ^s	41 ^o 61 ⁱ 0 ⁱ 07 ⁱ	40 ^s 79 ^s 0 ^s 04 ^s	38 ^o 74 ⁱ 0 ⁱ 79 ⁱ
20	14 ^s 60 ^s 0 ^s 67 ^s	73 ^o 75 ⁱ 2 ⁱ 25 ⁱ	49 ^s 53 ^s 0 ^s 01 ^s	41 ^o 68 ⁱ 0 ⁱ 04 ⁱ	40 ^s 83 ^s 0 ^s 01 ^s	37 ^o 95 ⁱ 0 ⁱ 75 ⁱ
30	13 ^s 93 ^s 0 ^s 81 ^s	76 ^o 00 ⁱ 1 ⁱ 83 ⁱ	49 ^s 52 ^s 0 ^s 04 ^s	41 ^o 72 ⁱ 0 ⁱ 01 ⁱ	40 ^s 82 ^s 0 ^s 03 ^s	37 ^o 20 ⁱ 0 ⁱ 69 ⁱ
July 10	13 ^s 12 ^s 0 ^s 90 ^s	77 ^o 83 ⁱ 1 ⁱ 39 ⁱ	49 ^s 48 ^s 0 ^s 07 ^s	41 ^o 71 ⁱ 0 ⁱ 06 ⁱ	40 ^s 79 ^s 0 ^s 06 ^s	36 ^o 51 ⁱ 0 ⁱ 62 ⁱ
20	12 ^s 22 ^s 1 ^s 00 ^s	79 ^o 22 ⁱ 0 ⁱ 90 ⁱ	49 ^s 41 ^s 0 ^s 10 ^s	41 ^o 65 ⁱ 0 ⁱ 11 ⁱ	40 ^s 73 ^s 0 ^s 09 ^s	35 ^o 89 ⁱ 0 ⁱ 54 ⁱ
30	11 ^s 22 ^s 1 ^s 06 ^s	80 ^o 12 ⁱ 0 ⁱ 41 ⁱ	49 ^s 31 ^s 0 ^s 12 ^s	41 ^o 54 ⁱ 0 ⁱ 16 ⁱ	40 ^s 64 ^s 0 ^s 12 ^s	35 ^o 35 ⁱ 0 ⁱ 45 ⁱ
Aug. 9	10 ^s 16 ^s 1 ^s 10 ^s	80 ^o 53 ⁱ 0 ⁱ 11 ⁱ	49 ^s 19 ^s 0 ^s 15 ^s	41 ^o 38 ⁱ 0 ⁱ 21 ⁱ	40 ^s 52 ^s 0 ^s 14 ^s	34 ^o 90 ⁱ 0 ⁱ 33 ⁱ
19	9 ^s 06 ^s 1 ^s 11 ^s	80 ^o 42 ⁱ 0 ⁱ 64 ⁱ	49 ^s 04 ^s 0 ^s 16 ^s	41 ^o 17 ⁱ 0 ⁱ 26 ⁱ	40 ^s 38 ^s 0 ^s 15 ^s	34 ^o 57 ⁱ 0 ⁱ 23 ⁱ
29	7 ^s 95 ^s 1 ^s 10 ^s	79 ^o 78 ⁱ 1 ⁱ 13 ⁱ	48 ^s 88 ^s 0 ^s 16 ^s	40 ^o 91 ⁱ 0 ⁱ 29 ⁱ	40 ^s 23 ^s 0 ^s 16 ^s	34 ^o 34 ⁱ 0 ⁱ 11 ⁱ
Sept. 8	6 ^s 85 ^s 1 ^s 06 ^s	78 ^o 65 ⁱ 1 ⁱ 64 ⁱ	48 ^s 72 ^s 0 ^s 15 ^s	40 ^o 62 ⁱ 0 ⁱ 32 ⁱ	40 ^s 07 ^s 0 ^s 15 ^s	34 ^o 23 ⁱ 0 ⁱ 02 ⁱ
18	5 ^s 79 ^s 1 ^s 00 ^s	77 ^o 01 ⁱ 2 ⁱ 11 ⁱ	48 ^s 57 ^s 0 ^s 15 ^s	40 ^o 30 ⁱ 0 ⁱ 33 ⁱ	39 ^s 92 ^s 0 ^s 14 ^s	34 ^o 25 ⁱ 0 ⁱ 17 ⁱ
28	4 ^s 79 ^s 0 ^s 90 ^s	74 ^o 90 ⁱ 2 ⁱ 54 ⁱ	48 ^s 42 ^s 0 ^s 12 ^s	39 ^o 97 ⁱ 0 ⁱ 29 ⁱ	39 ^s 78 ^s 0 ^s 13 ^s	34 ^o 42 ⁱ 0 ⁱ 33 ⁱ
Oct. 8	3 ^s 89 ^s 0 ^s 78 ^s	72 ^o 36 ⁱ 2 ⁱ 93 ⁱ	48 ^s 30 ^s 0 ^s 08 ^s	39 ^o 68 ⁱ 0 ⁱ 24 ⁱ	39 ^s 65 ^s 0 ^s 09 ^s	34 ^o 75 ⁱ 0 ⁱ 49 ⁱ
18	3 ^s 11 ^s 0 ^s 64 ^s	69 ^o 43 ⁱ 3 ⁱ 27 ⁱ	48 ^s 22 ^s 0 ^s 05 ^s	39 ^o 44 ⁱ 0 ⁱ 14 ⁱ	39 ^s 56 ^s 0 ^s 05 ^s	35 ^o 24 ⁱ 0 ⁱ 70 ⁱ
28	2 ^s 47 ^s 0 ^s 48 ^s	66 ^o 16 ⁱ 3 ⁱ 53 ⁱ	48 ^s 17 ^s 0 ^s 01 ^s	39 ^o 30 ⁱ 0 ⁱ 02 ⁱ	39 ^s 51 ^s 0 ^s 01 ^s	35 ^o 94 ⁱ 0 ⁱ 88 ⁱ
Nov. 7	1 ^s 99 ^s 0 ^s 28 ^s	62 ^o 63 ⁱ 3 ⁱ 72 ⁱ	48 ^s 18 ^s 0 ^s 05 ^s	39 ^o 28 ⁱ 0 ⁱ 14 ⁱ	39 ^s 50 ^s 0 ^s 03 ^s	36 ^o 82 ⁱ 1 ⁱ 08 ⁱ
17	1 ^s 71 ^s 0 ^s 09 ^s	58 ^o 91 ⁱ 4 ⁱ 20 ⁱ	48 ^s 23 ^s 0 ^s 12 ^s	39 ^o 42 ⁱ 0 ⁱ 36 ⁱ	39 ^s 53 ^s 0 ^s 10 ^s	37 ^o 90 ⁱ 1 ⁱ 41 ⁱ
27	* 1 ^s 62 ^s 0 ^s 13 ^s	54 ^o 71 ⁱ 3 ⁱ 81 ⁱ	48 ^s 35 ^s 0 ^s 17 ^s	39 ^o 78 ⁱ 0 ⁱ 52 ⁱ	* 39 ^s 63 ^s 0 ^s 14 ^s	39 ^o 31 ⁱ 1 ⁱ 47 ⁱ
Dec. 7	1 ^s 75 ^s 0 ^s 34 ^s	50 ^o 90 ⁱ 3 ⁱ 70 ⁱ	48 ^s 52 ^s 0 ^s 21 ^s	40 ^o 30 ⁱ 0 ⁱ 72 ⁱ	39 ^s 77 ^s 0 ^s 19 ^s	40 ^o 78 ⁱ 1 ⁱ 61 ⁱ
17	2 ^s 09 ^s 0 ^s 53 ^s	47 ^o 20 ⁱ 3 ⁱ 45 ⁱ	48 ^s 73 ^s 0 ^s 25 ^s	41 ^o 02 ⁱ 0 ⁱ 89 ⁱ	39 ^s 96 ^s 0 ^s 22 ^s	42 ^o 39 ⁱ 1 ⁱ 70 ⁱ
27	2 ^s 62 ^s 0 ^s 71 ^s	43 ^o 75 ⁱ 3 ⁱ 14 ⁱ	48 ^s 98 ^s 0 ^s 29 ^s	41 ^o 91 ⁱ 1 ⁱ 05 ⁱ	40 ^s 18 ^s 0 ^s 26 ^s	44 ^o 09 ⁱ 1 ⁱ 75 ⁱ
37	3 ^s 33 ^s	40 ^o 61 ⁱ	49 ^s 27 ^s	42 ^o 96 ⁱ	40 ^s 44 ^s	45 ^o 84 ⁱ

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α SCORPII.		η Draconis.		α Triang. Aust.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	$16^{\text{h}} 19^{\text{m}}$	$26^{\circ} 3'$	$16^{\text{h}} 21^{\text{m}}$	$61^{\circ} 53'$	$16^{\text{h}} 31^{\text{m}}$	$68^{\circ} 42'$
Jan. 1	11 ^s 99 ^a	10 ["] 00 ["]	42 ^s 61 ^a	21 ["] 91 ["]	5 ^s 00 ^a	23 ["] 16 ["]
11	12 ^s 29 ^a	10 ["] 64 ["]	42 ^s 96 ^a	18 ["] 64 ["]	5 ^s 60 ^a	21 ["] 73 ["]
21	12 ^s 60 ^a	11 ["] 42 ["]	43 ^s 38 ^a	15 ["] 78 ["]	6 ^s 27 ^a	20 ["] 70 ["]
31	12 ^s 94 ^a	12 ["] 30 ["]	43 ^s 86 ^a	13 ["] 43 ["]	6 ^s 98 ^a	20 ["] 12 ["]
	0 ["] 34	0 ["] 95	0 ["] 50	1 ["] 76	0 ["] 76	0 ["] 23
Feb. 10	13 ^s 28 ^a	13 ["] 25 ["]	44 ^s 36 ^a	11 ["] 67 ["]	7 ^s 74 ^a	19 ["] 89 ["]
20	13 ^s 62 ^a	14 ["] 24 ["]	44 ^s 88 ^a	10 ["] 55 ["]	8 ^s 30 ^a	20 ["] 12 ["]
Mar. 2	13 ^s 95 ^a	15 ["] 22 ["]	45 ^s 41 ^a	10 ["] 11 ["]	9 ^s 26 ^a	20 ["] 76 ["]
12	14 ^s 27 ^a	16 ["] 19 ["]	45 ^s 92 ^a	10 ["] 33 ["]	10 ^s 01 ^a	21 ["] 77 ["]
	0 ["] 31	0 ["] 90	0 ["] 48	0 ["] 88	0 ["] 72	1 ["] 37
22	14 ^s 58 ^a	17 ["] 09 ["]	46 ^s 40 ^a	11 ["] 21 ["]	10 ^s 73 ^a	23 ["] 14 ["]
April 1	14 ^s 87 ^a	17 ["] 95 ["]	46 ^s 84 ^a	12 ["] 68 ["]	11 ^s 40 ^a	24 ["] 80 ["]
11	15 ^s 14 ^a	18 ["] 73 ["]	47 ^s 23 ^a	14 ["] 67 ["]	12 ^s 03 ^a	26 ["] 79 ["]
21	15 ^s 38 ^a	19 ["] 45 ["]	47 ^s 56 ^a	17 ["] 11 ["]	12 ^s 60 ^a	28 ["] 99 ["]
	0 ["] 22	0 ["] 67	0 ["] 26	2 ["] 76	0 ["] 50	2 ["] 40
May 1	15 ^s 60 ^a	20 ["] 12 ["]	47 ^s 82 ^a	19 ["] 87 ["]	13 ^s 10 ^a	31 ["] 39 ["]
11	15 ^s 80 ^a	20 ["] 73 ["]	48 ^s 01 ^a	22 ["] 88 ["]	13 ^s 53 ^a	33 ["] 95 ["]
21	15 ^s 96 ^a	21 ["] 29 ["]	48 ^s 12 ^a	26 ["] 00 ["]	13 ^s 87 ^a	36 ["] 60 ["]
31	16 ^s 08 ^a	21 ["] 81 ["]	48 ^s 17 ^a	29 ["] 14 ["]	14 ^s 13 ^a	39 ["] 29 ["]
	0 ["] 09	0 ["] 49	0 ["] 04	3 ["] 06	0 ["] 15	2 ["] 68
June 10	16 ^s 17 ^a	22 ["] 30 ["]	48 ^s 13 ^a	32 ["] 20 ["]	14 ^s 28 ^a	41 ["] 97 ["]
20	16 ^s 23 ^a	22 ["] 73 ["]	48 ^s 02 ^a	35 ["] 09 ["]	14 ^s 35 ^a	44 ["] 58 ["]
30	16 ^s 24 ^a	23 ["] 11 ["]	47 ^s 85 ^a	37 ["] 70 ["]	14 ^s 31 ^a	47 ["] 05 ["]
July 10	16 ^s 22 ^a	23 ["] 43 ["]	47 ^s 61 ^a	40 ["] 02 ["]	14 ^s 17 ^a	49 ["] 31 ["]
	0 ["] 06	0 ["] 26	0 ["] 30	1 ["] 92	0 ["] 22	2 ["] 01
20	16 ^s 16 ^a	23 ["] 69 ["]	47 ^s 31 ^a	41 ["] 94 ["]	13 ^s 95 ^a	51 ["] 32 ["]
30	16 ^s 07 ^a	23 ["] 86 ["]	46 ^s 96 ^a	43 ["] 43 ["]	13 ^s 63 ^a	52 ["] 99 ["]
Aug. 9	15 ^s 95 ^a	23 ["] 93 ["]	46 ^s 57 ^a	44 ["] 45 ["]	13 ^s 24 ^a	54 ["] 28 ["]
19	15 ^s 80 ^a	23 ["] 91 ["]	46 ^s 14 ^a	44 ["] 98 ["]	12 ^s 81 ^a	55 ["] 15 ["]
	0 ["] 17	0 ["] 14	0 ["] 44	0 ["] 02	0 ["] 48	0 ["] 41
29	15 ^s 63 ^a	23 ["] 77 ["]	45 ^s 70 ^a	45 ["] 00 ["]	12 ^s 33 ^a	55 ["] 56 ["]
Sept. 8	15 ^s 46 ^a	23 ["] 53 ["]	45 ^s 25 ^a	44 ["] 50 ["]	11 ^s 82 ^a	55 ["] 49 ["]
18	15 ^s 28 ^a	23 ["] 20 ["]	44 ^s 80 ^a	43 ["] 49 ["]	11 ^s 32 ^a	54 ["] 95 ["]
28	15 ^s 12 ^a	22 ["] 79 ["]	44 ^s 38 ^a	41 ["] 98 ["]	10 ^s 85 ^a	53 ["] 93 ["]
	0 ["] 14	0 ["] 46	0 ["] 40	2 ["] 02	0 ["] 42	1 ["] 43
Oct. 8	14 ^s 98 ^a	22 ["] 33 ["]	43 ^s 98 ^a	39 ["] 96 ["]	10 ^s 43 ^a	52 ["] 50 ["]
18	14 ^s 87 ^a	21 ["] 86 ["]	43 ^s 64 ^a	37 ["] 52 ["]	10 ^s 08 ^a	50 ["] 69 ["]
28	14 ^s 80 ^a	21 ["] 40 ["]	43 ^s 35 ^a	34 ["] 65 ["]	9 ^s 82 ^a	48 ["] 59 ["]
Nov. 7	14 ^s 78 ^a	21 ["] 01 ["]	43 ^s 14 ^a	31 ["] 44 ["]	9 ^s 67 ^a	46 ["] 26 ["]
	0 ["] 03	0 ["] 29	0 ["] 13	3 ["] 51	0 ["] 02	2 ["] 44
17	14 ^s 81 ^a	20 ["] 72 ["]	43 ^s 01 ^a	27 ["] 93 ["]	9 ^s 65 ^a	43 ["] 82 ["]
27	14 ^s 91 ^a	20 ["] 55 ["]	42 ^s 96 ^a	23 ["] 85 ["]	9 ^s 76 ^a	41 ["] 36 ["]
Dec. 7	15 ^s 06 ^a	20 ["] 57 ["]	43 ^s 02 ^a	20 ["] 02 ["]	10 ^s 00 ^a	38 ["] 73 ["]
17	15 ^s 26 ^a	20 ["] 78 ["]	43 ^s 17 ^a	16 ["] 21 ["]	10 ^s 36 ^a	36 ["] 54 ["]
	0 ["] 24	0 ["] 39	0 ["] 24	3 ["] 69	0 ["] 47	1 ["] 94
27	15 ^s 50 ^a	21 ["] 17 ["]	43 ^s 41 ^a	12 ["] 52 ["]	10 ^s 83 ^a	34 ["] 60 ["]
37	15 ^s 79 ^a	21 ["] 73 ["]	43 ^s 73 ^a	9 ["] 06 ["]	11 ^s 39 ^a	32 ["] 98 ["]

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	σ Octantis.			ϵ Ursæ Minoris.		
	R. A.		Dec. South.	R. A.		Dec. North.
	^h 17	^m 17	^s 89	^h 17	^m 17	^s 82
Jan. 1	0 2 52	12 52	15 8 26	3 7 13	0 67	17 46 25
11	0 15 04	14 31	5 83	7 80	0 96	42 92
21	0 29 85	16 30	3 80	8 76	1 20	39 92
31	0 46 65	18 26	2 22	9 96	1 40	37 35
Feb. 10	1 4 91	19 27	1 11	11 36	1 54	35 31
20	1 24 18	19 76	0 53	12 90	1 62	33 86
March 2	1 43 94	19 30	0 44	14 52	1 65	33 04
12	2 3 74	19 48	0 87	16 17	1 60	32 89
22	2 23 22	18 62	1 78	17 77	1 51	33 38
April 1	2 41 84	17 47	3 15	19 28	1 36	34 48
11	2 59 31	15 93	4 95	20 64	1 16	36 14
21	3 15 24	14 05	7 13	21 80	0 94	38 29
May 1	3 29 29	11 96	9 65	22 74	0 68	40 82
11	3 41 25	9 53	12 44	23 42	0 40	43 66
21	3 50 78	6 95	15 48	23 82	0 13	46 69
31	3 57 73	4 20	18 65	23 95	0 17	49 80
June 10	4 1 93	1 41	21 92	23 78	0 44	52 91
20	4 3 34	1 50	25 20	23 34	0 70	55 91
30	4 1 84	4 28	28 39	22 64	0 95	17 58 73
July 10	3 57 56	6 93	31 44	21 69	1 17	18 1 28
20	3 50 63	9 39	34 24	20 52	1 37	3 50
30	3 41 24	11 56	36 70	19 15	1 53	5 35
Aug. 9	3 29 68	13 34	38 77	17 62	1 66	5 76
19	3 16 34	14 68	40 37	15 96	1 75	7 72
29	3 1 66	15 50	41 44	14 21	1 80	8 21
Sept. 8	2 46 16	15 71	41 95	12 41	1 83	8 18
18	2 30 45	15 37	41 87	10 58	1 79	7 67
28	2 15 08	14 39	41 19	8 79	1 72	6 64
Oct. 8	2 0 69	12 82	39 93	7 07	1 61	5 13
18	1 47 87	10 71	38 14	5 46	1 45	3 16
28	1 37 16	8 16	35 88	4 01	1 25	18 0 74
Nov. 7	1 29 00	5 19	33 25	2 76	1 02	17 57 93
17	1 23 81	1 98	30 32	1 74	0 74	54 79
27	1 21 83	1 66	27 22	1 00	0 49	51 39
Dec. 7	1 23 49	4 98	23 76	0 51	0 11	47 44
17	1 28 47	8 19	20 68	0 40	0 21	43 78
27	1 36 66	11 21	17 78	0 61	0 51	40 16
37	1 47 87	15 15	15 15	3 1 12	17 36 70	3 46

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α HERCULIS.		β DRACONIS.		α OPHIUCHI.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h ^m 17 7	^o ⁱ 14 34	^h ^m 17 26	^o ⁱ 52 25	^h ^m 17 27	^o ⁱ 12 41
Jan. 1	2 ^s 72 ^s	68 ["] 06 ["]	38 ^s 61 ^s	34 ["] 08 ["]	11 ^s 70 ^s	15 ["] 05 ["]
11	2 ^s 93 ^s	65 ["] 66 ["]	38 ^s 82 ^s	30 ["] 58 ["]	11 ^s 90 ^s	12 ["] 76 ["]
21	3 ^s 18 ^s	63 ["] 41 ["]	39 ^s 09 ^s	27 ["] 35 ["]	12 ^s 12 ^s	10 ["] 60 ["]
31	3 ^s 45 ^s	61 ["] 39 ["]	39 ^s 41 ^s	24 ["] 48 ["]	12 ^s 38 ^s	8 ["] 63 ["]
	0 ^m 28 ^m	1 ⁱ 73 ⁱ	0 ^m 36 ^m	2 ⁱ 39 ⁱ	0 ^m 27 ^m	1 ⁱ 70 ⁱ
Feb. 10	3 ^s 73 ^s	59 ["] 66 ["]	39 ^s 77 ^s	22 ["] 09 ["]	12 ^s 65 ^s	6 ["] 93 ["]
20	4 ^s 03 ^s	58 ["] 30 ["]	40 ^s 16 ^s	20 ["] 25 ["]	12 ^s 94 ^s	5 ["] 57 ["]
Mar. 2	4 ^s 32 ^s	57 ["] 34 ["]	40 ^s 56 ^s	19 ["] 03 ["]	13 ^s 23 ^s	4 ["] 58 ["]
12	4 ^s 62 ^s	56 ["] 81 ["]	40 ^s 98 ^s	18 ["] 45 ["]	13 ^s 53 ^s	4 ["] 01 ["]
	0 ^m 29 ^m	0 ⁱ 10 ⁱ	0 ^m 41 ^m	0 ⁱ 08 ⁱ	0 ^m 29 ^m	0 ⁱ 15 ⁱ
22	4 ^s 91 ^s	56 ["] 71 ["]	41 ^s 39 ^s	18 ["] 53 ["]	13 ^s 82 ^s	3 ["] 86 ["]
April 1	5 ^s 19 ^s	57 ["] 05 ["]	41 ^s 78 ^s	19 ["] 24 ["]	14 ^s 10 ^s	4 ["] 14 ["]
11	5 ^s 45 ^s	57 ["] 78 ["]	42 ^s 15 ^s	20 ["] 55 ["]	14 ^s 37 ^s	4 ["] 78 ["]
21	5 ^s 70 ^s	58 ["] 86 ["]	42 ^s 50 ^s	22 ["] 40 ["]	14 ^s 63 ^s	5 ["] 79 ["]
	0 ^m 22 ^m	1 ⁱ 38 ⁱ	0 ^m 30 ^m	2 ⁱ 29 ⁱ	0 ^m 24 ^m	1 ⁱ 30 ⁱ
May 1	5 ^s 92 ^s	60 ["] 24 ["]	42 ^s 80 ^s	24 ["] 69 ["]	14 ^s 87 ^s	7 ["] 09 ["]
11	6 ^s 12 ^s	61 ["] 85 ["]	43 ^s 06 ^s	27 ["] 35 ["]	15 ^s 08 ^s	8 ["] 63 ["]
21	6 ^s 29 ^s	63 ["] 61 ["]	43 ^s 26 ^s	30 ["] 28 ["]	15 ^s 27 ^s	10 ["] 34 ["]
31	6 ^s 43 ^s	65 ["] 47 ["]	43 ^s 41 ^s	33 ["] 36 ["]	15 ^s 43 ^s	12 ["] 15 ["]
	0 ^m 11 ^m	1 ⁱ 89 ⁱ	0 ^m 10 ^m	8 ⁱ 16 ⁱ	0 ^m 13 ^m	1 ⁱ 35 ⁱ
June 10	6 ^s 54 ^s	67 ["] 36 ["]	43 ^s 51 ^s	36 ["] 52 ["]	15 ^s 56 ^s	14 ["] 00 ["]
20	6 ^s 61 ^s	69 ["] 23 ["]	43 ^s 55 ^s	39 ["] 64 ["]	15 ^s 65 ^s	15 ["] 84 ["]
30	6 ^s 65 ^s	71 ["] 00 ["]	43 ^s 52 ^s	42 ["] 64 ["]	15 ^s 70 ^s	17 ["] 59 ["]
July 10	6 ^s 64 ^s	72 ["] 63 ["]	43 ^s 44 ^s	45 ["] 45 ["]	15 ^s 72 ^s	19 ["] 24 ["]
	0 ^m 04 ^m	1 ⁱ 47 ⁱ	0 ^m 14 ^m	2 ⁱ 53 ⁱ	0 ^m 03 ^m	1 ⁱ 48 ⁱ
20	6 ^s 60 ^s	74 ["] 10 ["]	43 ^s 30 ^s	47 ["] 98 ["]	15 ^s 69 ^s	20 ["] 72 ["]
30	6 ^s 52 ^s	75 ["] 35 ["]	43 ^s 11 ^s	50 ["] 19 ["]	15 ^s 63 ^s	22 ["] 00 ["]
Aug. 9	6 ^s 41 ^s	76 ["] 37 ["]	42 ^s 87 ^s	52 ["] 01 ["]	15 ^s 54 ^s	23 ["] 07 ["]
19	6 ^s 28 ^s	77 ["] 13 ["]	42 ^s 59 ^s	53 ["] 41 ["]	15 ^s 41 ^s	23 ["] 90 ["]
	0 ^m 16 ^m	0 ⁱ 50 ⁱ	0 ^m 32 ^m	0 ⁱ 94 ⁱ	0 ^m 15 ^m	0 ⁱ 57 ⁱ
29	6 ^s 12 ^s	77 ["] 63 ["]	42 ^s 27 ^s	54 ["] 35 ["]	15 ^s 26 ^s	24 ["] 47 ["]
Sept. 8	5 ^s 94 ^s	77 ["] 84 ["]	41 ^s 94 ^s	54 ["] 81 ["]	15 ^s 09 ^s	24 ["] 78 ["]
18	5 ^s 76 ^s	77 ["] 77 ["]	41 ^s 59 ^s	54 ["] 77 ["]	14 ^s 91 ^s	24 ["] 80 ["]
28	5 ^s 58 ^s	77 ["] 39 ["]	41 ^s 24 ^s	54 ["] 23 ["]	14 ^s 73 ^s	24 ["] 55 ["]
	0 ^m 17 ^m	0 ⁱ 68 ⁱ	0 ^m 33 ^m	1 ⁱ 06 ⁱ	0 ^m 18 ^m	0 ⁱ 54 ⁱ
Oct. 8	5 ^s 41 ^s	76 ["] 71 ["]	40 ^s 91 ^s	53 ["] 17 ["]	14 ^s 55 ^s	24 ["] 01 ["]
18	5 ^s 27 ^s	75 ["] 74 ["]	40 ^s 59 ^s	51 ["] 61 ["]	14 ^s 40 ^s	23 ["] 18 ["]
28	5 ^s 15 ^s	74 ["] 45 ["]	40 ^s 32 ^s	49 ["] 58 ["]	14 ^s 27 ^s	22 ["] 07 ["]
Nov. 7	5 ^s 07 ^s	72 ["] 89 ["]	40 ^s 09 ^s	47 ["] 11 ["]	14 ^s 18 ^s	20 ["] 67 ["]
	0 ^m 03 ^m	1 ⁱ 82 ⁱ	0 ^m 17 ^m	2 ⁱ 86 ⁱ	0 ^m 05 ^m	1 ⁱ 64 ⁱ
17	5 ^s 04 ^s	71 ["] 07 ["]	39 ^s 92 ^s	44 ["] 25 ["]	14 ^s 13 ^s	19 ["] 03 ["]
27	5 ^s 05 ^s	69 ["] 01 ["]	39 ^s 81 ^s	41 ["] 06 ["]	14 ^s 13 ^s	17 ["] 14 ["]
Dec. 7	5 ^s 11 ^s	66 ["] 76 ["]	39 ^s 78 ^s	37 ["] 60 ["]	14 ^s 17 ^s	15 ["] 06 ["]
17	5 ^s 23 ^s	64 ["] 13 ["]	39 ^s 82 ^s	33 ["] 63 ["]	14 ^s 27 ^s	12 ["] 61 ["]
	0 ^m 16 ^m	2 ⁱ 45 ⁱ	0 ^m 11 ^m	3 ⁱ 66 ⁱ	0 ^m 14 ^m	2 ⁱ 31 ⁱ
27	5 ^s 39 ^s	61 ["] 68 ["]	39 ^s 93 ^s	29 ["] 97 ["]	14 ^s 41 ^s	10 ["] 30 ["]
37	5 ^s 59 ^s	59 ["] 24 ["]	40 ^s 11 ^s	26 ["] 39 ["]	14 ^s 60 ^s	7 ["] 99 ["]

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	γ DRACONIS.		μ^1 Sagittarii.		α LYRÆ.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. N.
	^h 17 ^m 52	[°] 51 ['] 30	^h 18 ^m 3	[°] 21 ['] 5	^h 18 ^m 31	[°] 38
Jan. 1	42° 74' 0" 17	37° 90' 0" 52	47° 78' 0" 19	34° 65' 0" 31	16° 74' 0" 12	58° 87'
11	42° 91' 0" 23	34° 38' 3" 32	47° 97' 0" 23	34° 96' 0" 36	16° 86' 0" 17	55° 65'
21	43° 14' 0" 29	31° 06' 3" 00	48° 20' 0" 26	35° 32' 0" 36	17° 03' 0" 21	52° 54'
31	43° 43' 0" 32	28° 06' 2" 58	48° 46' 0" 28	35° 68' 0" 36	17° 24' 0" 24	49° 65'
Feb. 10	43° 75' 0" 36	25° 48' 2" 06	48° 74' 0" 29	36° 04' 0" 32	17° 48' 0" 28	47° 08'
20	44° 11' 0" 39	23° 42' 1" 48	49° 03' 0" 31	36° 36' 0" 26	17° 76' 0" 31	44° 94'
Mar. 2	44° 50' 0" 40	21° 94' 0" 84	49° 34' 0" 32	36° 62' 0" 17	18° 07' 0" 32	43° 30'
12	44° 90' 0" 40	21° 10' 0" 19	49° 66' 0" 32	36° 79' 0" 10	18° 39' 0" 33	42° 21'
22	45° 30' 0" 40	20° 91' 0" 44	49° 98' 0" 32	36° 89' 0" 00	18° 72' 0" 34	41° 71'
April 1	45° 70' 0" 38	21° 35' 1" 06	50° 30' 0" 31	36° 89' 0" 09	19° 06' 0" 33	41° 80'
11	46° 08' 0" 35	22° 41' 1" 62	50° 61' 0" 30	36° 80' 0" 15	19° 39' 0" 32	42° 49'
21	46° 43' 0" 33	24° 03' 2" 11	50° 91' 0" 29	36° 65' 0" 19	19° 71' 0" 31	43° 71'
May 1	46° 76' 0" 29	26° 14' 2" 52	51° 20' 0" 27	36° 46' 0" 22	20° 02' 0" 28	45° 43'
11	47° 05' 0" 23	28° 66' 2" 83	51° 47' 0" 25	36° 24' 0" 23	20° 30' 0" 25	47° 57'
21	47° 28' 0" 19	31° 49' 3" 04	51° 72' 0" 22	36° 01' 0" 20	20° 55' 0" 23	50° 04'
31	47° 47' 0" 14	34° 53' 3" 16	51° 94' 0" 19	35° 81' 0" 15	20° 78' 0" 17	52° 77'
June 10	47° 61' 0" 07	37° 69' 3" 18	52° 13' 0" 16	35° 66' 0" 11	20° 95' 0" 14	55° 67'
20	47° 68' 0" 02	40° 87' 3" 11	52° 29' 0" 11	35° 55' 0" 04	21° 09' 0" 09	58° 64'
30	47° 70' 0" 05	43° 98' 2" 97	52° 40' 0" 08	35° 51' 0" 03	21° 18' 0" 04	61° 61'
July 10	47° 65' 0" 10	46° 95' 2" 73	52° 48' 0" 03	35° 54' 0" 08	21° 22' 0" 02	64° 49'
20	47° 55' 0" 16	49° 68' 2" 45	52° 51' 0" 02	35° 62' 0" 13	21° 20' 0" 06	67° 22'
30	47° 39' 0" 21	52° 13' 2" 09	52° 49' 0" 06	35° 75' 0" 17	21° 14' 0" 11	69° 72'
Aug. 9	47° 18' 0" 26	54° 22' 1" 70	52° 43' 0" 09	35° 92' 0" 18	21° 03' 0" 15	71° 94'
19	46° 92' 0" 29	55° 92' 1" 27	52° 34' 0" 13	36° 10' 0" 18	20° 88' 0" 19	73° 84'
29	46° 63' 0" 32	57° 19' 0" 79	52° 21' 0" 15	36° 28' 0" 16	20° 69' 0" 22	75° 38'
Sept. 8	46° 31' 0" 34	57° 98' 0" 32	52° 06' 0" 18	36° 44' 0" 13	20° 47' 0" 24	76° 51'
18	45° 97' 0" 34	58° 30' 0" 20	51° 88' 0" 17	36° 57' 0" 10	20° 23' 0" 26	77° 20'
28	45° 63' 0" 34	58° 10' 0" 70	51° 71' 0" 18	36° 67' 0" 05	19° 97' 0" 26	77° 46'
Oct. 8	45° 29' 0" 32	57° 40' 1" 22	51° 53' 0" 16	36° 72' 0" 03	19° 71' 0" 25	77° 25'
18	44° 97' 0" 29	56° 18' 1" 70	51° 37' 0" 14	36° 75' 0" 00	19° 46' 0" 23	76° 58'
28	44° 68' 0" 25	54° 48' 2" 17	51° 23' 0" 10	36° 75' 0" 00	19° 23' 0" 20	75° 44'
Nov. 7	44° 43' 0" 20	52° 31' 2" 60	51° 13' 0" 06	36° 75' 0" 01	19° 03' 0" 16	73° 84'
17	44° 23' 0" 14	49° 71' 2" 96	51° 07' 0" 02	36° 76' 0" 05	18° 87' 0" 12	71° 83'
27	44° 09' 0" 07	46° 75' 3" 28	51° 05' 0" 04	36° 81' 0" 10	18° 75' 0" 07	69° 43'
Dec. 7	44° 02' 0" 01	43° 47' 3" 48	51° 09' 0" 08	36° 91' 0" 17	18° 68' 0" 01	66° 70'
17	44° 01' 0" 08	39° 99' 3" 94	51° 17' 0" 14	37° 08' 0" 20	18° 67' 0" 03	63° 72'
27	44° 09' 0" 14	36° 05' 3" 58	51° 31' 0" 18	37° 28' 0" 28	18° 70' 0" 09	60° 56'
37	44° 23' 0" 14	32° 47' 3" 58	51° 49' 0" 18	37° 56' 0" 28	18° 79' 0" 09	57° 35'

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β LYRÆ.		ζ AQUILÆ.		δ AQUILÆ.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 18 43	^m 33 10	^h 18 57	^m 13 37	^h 19 17	^m 2 47
Jan. 1	^s 54 87	["] 28 16	^s 44 63	["] 21 50	^s 5 29	["] 22 71
11	^s 54 98	["] 25 14	^s 44 74	["] 19 37	^s 5 39	["] 21 23
21	^s 55 13	["] 22 21	^s 44 89	["] 17 29	^s 5 53	["] 19 78
31	^s 55 32	["] 19 47	^s 45 07	["] 15 34	^s 5 69	["] 18 42
	0 23	2 46	0 20	1 73	0 20	1 19
Feb. 10	55 55	17 01	45 27	13 61	5 89	17 23
20	55 81	14 94	45 51	12 14	6 11	16 24
Mar. 2	56 09	13 33	45 76	11 03	6 35	15 52
12	56 39	12 25	46 03	10 30	6 61	15 09
	0 32	0 55	0 28	0 32	0 28	0 10
22	56 71	11 70	46 31	9 98	6 89	14 99
April 1	57 03	11 74	46 60	10 09	7 17	15 21
11	57 34	12 32	46 89	10 62	7 46	15 75
21	57 66	13 43	47 18	11 53	7 76	16 59
	0 30	1 57	0 29	1 27	0 29	1 11
May 1	57 96	15 00	47 47	12 80	8 05	17 70
11	58 24	17 00	47 74	14 36	8 33	19 02
21	58 50	19 31	48 00	16 16	8 60	20 50
31	58 73	21 89	48 23	18 13	8 85	22 11
	0 19	2 75	0 21	2 08	0 23	1 65
June 10	58 92	24 64	48 44	20 21	9 08	23 76
20	59 07	27 46	48 61	22 32	9 27	25 42
30	59 17	30 30	48 75	24 41	9 43	27 03
July 10	59 24	33 06	48 84	26 43	9 55	28 56
	0 01	2 62	0 06	1 90	0 08	1 41
20	59 25	35 68	48 90	28 33	9 63	29 97
30	59 21	38 10	48 90	30 05	9 67	31 23
Aug. 9	59 13	40 27	48 87	31 57	9 66	32 31
19	59 01	42 14	48 80	32 87	9 62	33 21
	0 16	1 53	0 11	1 04	0 09	0 70
29	58 85	43 67	48 69	33 91	9 53	33 91
Sept. 8	58 65	44 82	48 55	34 69	9 41	34 41
18	58 44	45 58	48 38	35 19	9 27	34 71
28	58 21	45 92	48 20	35 40	9 11	34 81
	0 24	0 08	0 18	0 08	0 17	0 10
Oct. 8	57 97	45 84	48 02	35 32	8 94	34 71
18	57 75	45 31	47 84	34 94	8 77	34 41
28	57 54	44 34	47 68	34 27	8 61	33 92
Nov. 7	57 35	42 96	47 53	33 30	8 48	33 23
	0 15	1 80	0 11	1 24	0 12	0 86
17	57 20	41 16	47 42	32 06	8 36	32 37
27	57 09	39 00	47 34	30 57	8 29	31 33
Dec. 7	57 02	36 51	47 30	28 83	8 24	30 13
17	57 00	33 77	47 31	26 92	8 24	28 81
	0 04	2 92	0 04	2 04	0 04	1 43
27	57 04	30 85	47 35	24 88	8 28	27 38
37	57 12	27 84	47 44	22 76	8 36	25 92

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	γ AQUILÆ.		α AQUILÆ.		β AQUILÆ.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 19 ^m 38	[°] 10 12	^h 19 ^m 42	[°] 8 25	^h 19 ^m 47	[°] 5 59
Jan. 1	19 ^s 83 ^s 0 ^s 07	50 ^s 62 ^s 1 ^s 84	38 ^s 78 ^s 0 ^s 07	65 ^s 55 ^s 1 ^s 73	7 ^s 34 ^s 0 ^s 07	50 ^s 59 ^s 1 ^s 56
11	19 ^s 90 ^s 0 ^s 11	48 ^s 78 ^s 1 ^s 98	38 ^s 85 ^s 0 ^s 12	63 ^s 82 ^s 1 ^s 86	7 ^s 41 ^s 0 ^s 10	49 ^s 03 ^s 1 ^s 68
21	20 ^s 01 ^s 0 ^s 15	46 ^s 80 ^s 1 ^s 72	38 ^s 97 ^s 0 ^s 14	61 ^s 96 ^s 1 ^s 60	7 ^s 51 ^s 0 ^s 14	47 ^s 35 ^s 1 ^s 45
31	20 ^s 16 ^s 0 ^s 17	45 ^s 08 ^s 1 ^s 52	39 ^s 11 ^s 0 ^s 17	60 ^s 36 ^s 1 ^s 44	7 ^s 65 ^s 0 ^s 17	45 ^s 90 ^s 1 ^s 29
Feb. 10	20 ^s 33 ^s 0 ^s 20	43 ^s 56 ^s 1 ^s 30	39 ^s 28 ^s 0 ^s 20	58 ^s 92 ^s 1 ^s 21	7 ^s 82 ^s 0 ^s 19	44 ^s 61 ^s 1 ^s 09
20	20 ^s 53 ^s 0 ^s 23	42 ^s 26 ^s 1 ^s 01	39 ^s 48 ^s 0 ^s 22	57 ^s 71 ^s 0 ^s 93	8 ^s 01 ^s 0 ^s 22	43 ^s 52 ^s 0 ^s 82
Mar. 2	20 ^s 76 ^s 0 ^s 24	41 ^s 25 ^s 0 ^s 66	39 ^s 70 ^s 0 ^s 25	56 ^s 78 ^s 0 ^s 60	8 ^s 23 ^s 0 ^s 24	42 ^s 70 ^s 0 ^s 32
12	21 ^s 00 ^s 0 ^s 27	40 ^s 59 ^s 0 ^s 28	39 ^s 95 ^s 0 ^s 26	56 ^s 18 ^s 0 ^s 24	8 ^s 47 ^s 0 ^s 26	42 ^s 18 ^s 0 ^s 18
22	21 ^s 27 ^s 0 ^s 28	40 ^s 31 ^s 0 ^s 10	40 ^s 21 ^s 0 ^s 28	55 ^s 94 ^s 0 ^s 13	8 ^s 73 ^s 0 ^s 28	42 ^s 00 ^s 0 ^s 16
April 1	21 ^s 55 ^s 0 ^s 29	40 ^s 41 ^s 0 ^s 48	40 ^s 49 ^s 0 ^s 29	56 ^s 07 ^s 0 ^s 51	9 ^s 01 ^s 0 ^s 29	42 ^s 16 ^s 0 ^s 51
11	21 ^s 84 ^s 0 ^s 29	40 ^s 89 ^s 0 ^s 86	40 ^s 78 ^s 0 ^s 29	56 ^s 58 ^s 0 ^s 85	9 ^s 30 ^s 0 ^s 29	42 ^s 67 ^s 0 ^s 83
21	22 ^s 13 ^s 0 ^s 30	41 ^s 75 ^s 1 ^s 18	41 ^s 07 ^s 0 ^s 30	57 ^s 43 ^s 1 ^s 18	9 ^s 59 ^s 0 ^s 30	43 ^s 50 ^s 1 ^s 13
May 1	22 ^s 43 ^s 0 ^s 29	42 ^s 93 ^s 1 ^s 48	41 ^s 37 ^s 0 ^s 29	58 ^s 61 ^s 1 ^s 44	9 ^s 89 ^s 0 ^s 29	44 ^s 63 ^s 1 ^s 38
11	22 ^s 72 ^s 0 ^s 27	44 ^s 41 ^s 1 ^s 71	41 ^s 66 ^s 0 ^s 28	60 ^s 05 ^s 1 ^s 67	10 ^s 18 ^s 0 ^s 28	46 ^s 01 ^s 1 ^s 57
21	22 ^s 99 ^s 0 ^s 27	46 ^s 12 ^s 1 ^s 88	41 ^s 94 ^s 0 ^s 26	61 ^s 72 ^s 1 ^s 83	10 ^s 46 ^s 0 ^s 27	47 ^s 58 ^s 1 ^s 72
31	23 ^s 26 ^s 0 ^s 23	48 ^s 00 ^s 1 ^s 99	42 ^s 20 ^s 0 ^s 25	63 ^s 55 ^s 1 ^s 93	10 ^s 73 ^s 0 ^s 25	49 ^s 30 ^s 1 ^s 81
June 10	23 ^s 49 ^s 0 ^s 21	49 ^s 99 ^s 2 ^s 04	42 ^s 45 ^s 0 ^s 21	65 ^s 48 ^s 1 ^s 98	10 ^s 98 ^s 0 ^s 21	51 ^s 11 ^s 1 ^s 83
20	23 ^s 70 ^s 0 ^s 18	52 ^s 03 ^s 2 ^s 03	42 ^s 66 ^s 0 ^s 18	67 ^s 46 ^s 1 ^s 96	11 ^s 19 ^s 0 ^s 19	52 ^s 94 ^s 1 ^s 82
30	23 ^s 88 ^s 0 ^s 13	54 ^s 06 ^s 1 ^s 97	42 ^s 84 ^s 0 ^s 14	69 ^s 42 ^s 1 ^s 89	11 ^s 38 ^s 0 ^s 14	54 ^s 76 ^s 1 ^s 73
July 10	24 ^s 01 ^s 0 ^s 09	56 ^s 03 ^s 1 ^s 86	42 ^s 98 ^s 0 ^s 10	71 ^s 31 ^s 1 ^s 78	11 ^s 52 ^s 0 ^s 11	56 ^s 49 ^s 1 ^s 63
20	24 ^s 10 ^s 0 ^s 05	57 ^s 89 ^s 1 ^s 71	43 ^s 08 ^s 0 ^s 06	73 ^s 09 ^s 1 ^s 63	11 ^s 63 ^s 0 ^s 06	58 ^s 12 ^s 1 ^s 48
30	24 ^s 15 ^s 0 ^s 01	59 ^s 60 ^s 1 ^s 52	43 ^s 14 ^s 0 ^s 01	74 ^s 72 ^s 1 ^s 45	11 ^s 69 ^s 0 ^s 02	59 ^s 60 ^s 1 ^s 31
Aug. 9	24 ^s 16 ^s 0 ^s 04	61 ^s 12 ^s 1 ^s 32	43 ^s 15 ^s 0 ^s 03	76 ^s 17 ^s 1 ^s 25	11 ^s 71 ^s 0 ^s 03	60 ^s 91 ^s 1 ^s 11
19	24 ^s 12 ^s 0 ^s 08	62 ^s 44 ^s 1 ^s 09	43 ^s 12 ^s 0 ^s 07	77 ^s 42 ^s 1 ^s 02	11 ^s 68 ^s 0 ^s 07	62 ^s 02 ^s 0 ^s 90
29	24 ^s 04 ^s 0 ^s 11	63 ^s 53 ^s 0 ^s 84	43 ^s 05 ^s 0 ^s 11	78 ^s 44 ^s 0 ^s 79	11 ^s 61 ^s 0 ^s 10	62 ^s 92 ^s 0 ^s 68
Sept. 8	23 ^s 93 ^s 0 ^s 14	64 ^s 37 ^s 0 ^s 59	42 ^s 94 ^s 0 ^s 13	79 ^s 23 ^s 0 ^s 56	11 ^s 51 ^s 0 ^s 13	63 ^s 60 ^s 0 ^s 47
18	23 ^s 79 ^s 0 ^s 16	64 ^s 96 ^s 0 ^s 33	42 ^s 81 ^s 0 ^s 15	79 ^s 79 ^s 0 ^s 30	11 ^s 38 ^s 0 ^s 15	64 ^s 07 ^s 0 ^s 24
28	23 ^s 63 ^s 0 ^s 17	65 ^s 29 ^s 0 ^s 07	42 ^s 66 ^s 0 ^s 17	80 ^s 09 ^s 0 ^s 06	11 ^s 23 ^s 0 ^s 16	64 ^s 31 ^s 0 ^s 02
Oct. 8	23 ^s 46 ^s 0 ^s 17	65 ^s 36 ^s 0 ^s 19	42 ^s 49 ^s 0 ^s 17	80 ^s 15 ^s 0 ^s 19	11 ^s 07 ^s 0 ^s 17	64 ^s 33 ^s 0 ^s 20
18	23 ^s 29 ^s 0 ^s 17	65 ^s 17 ^s 0 ^s 45	42 ^s 32 ^s 0 ^s 17	79 ^s 96 ^s 0 ^s 44	10 ^s 90 ^s 0 ^s 16	64 ^s 13 ^s 0 ^s 42
28	23 ^s 12 ^s 0 ^s 15	64 ^s 72 ^s 0 ^s 71	42 ^s 15 ^s 0 ^s 14	79 ^s 52 ^s 0 ^s 67	10 ^s 74 ^s 0 ^s 15	63 ^s 71 ^s 0 ^s 63
Nov. 7	22 ^s 97 ^s 0 ^s 12	64 ^s 01 ^s 0 ^s 97	42 ^s 01 ^s 0 ^s 13	78 ^s 85 ^s 0 ^s 91	10 ^s 59 ^s 0 ^s 13	63 ^s 08 ^s 0 ^s 83
17	22 ^s 85 ^s 0 ^s 10	63 ^s 04 ^s 1 ^s 19	41 ^s 88 ^s 0 ^s 10	77 ^s 94 ^s 1 ^s 12	10 ^s 46 ^s 0 ^s 09	62 ^s 25 ^s 1 ^s 03
27	22 ^s 75 ^s 0 ^s 07	61 ^s 85 ^s 1 ^s 40	41 ^s 78 ^s 0 ^s 06	76 ^s 82 ^s 1 ^s 33	10 ^s 37 ^s 0 ^s 07	61 ^s 22 ^s 1 ^s 21
Dec. 7	22 ^s 68 ^s 0 ^s 02	60 ^s 45 ^s 1 ^s 59	41 ^s 72 ^s 0 ^s 03	75 ^s 49 ^s 1 ^s 48	10 ^s 30 ^s 0 ^s 03	60 ^s 01 ^s 1 ^s 34
17	22 ^s 66 ^s 0 ^s 01	58 ^s 86 ^s 1 ^s 71	41 ^s 69 ^s 0 ^s 02	74 ^s 01 ^s 1 ^s 62	10 ^s 27 ^s 0 ^s 01	58 ^s 67 ^s 1 ^s 47
27	22 ^s 67 ^s 0 ^s 05	57 ^s 15 ^s 1 ^s 80	41 ^s 71 ^s 0 ^s 05	72 ^s 39 ^s 1 ^s 68	10 ^s 28 ^s 0 ^s 05	57 ^s 20 ^s 1 ^s 52
37	22 ^s 72 ^s 0 ^s 05	55 ^s 35 ^s 1 ^s 80	41 ^s 76 ^s 0 ^s 05	70 ^s 71 ^s 1 ^s 68	10 ^s 33 ^s 0 ^s 05	55 ^s 68 ^s 1 ^s 52

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α^2 CAPRICORN.			α Pavonis.		
	R. A.		Dec. South.	R. A.		Dec. South.
	^h 20	^m 47	^s 33	^h 20	^m 36	^s 57
Jan. 1	8 47 94	0 06	3 15 33	12 23 89	0 07	15 36 90
11	48 00	0 09	15 74	23 96	0 14	34 83
21	48 09	0 13	16 09	24 10	0 22	32 45
31	48 22	0 17	16 38	24 32	0 26	29 89
Feb. 10	48 39	0 18	16 54	24 58	0 32	27 58
20	48 58	0 22	16 55	24 90	0 37	25 33
March 2	48 80	0 24	16 41	25 27	0 41	23 19
12	49 04	0 26	16 09	25 68	0 45	21 20
22	49 30	0 28	15 59	26 13	0 48	19 40
April 1	49 58	0 30	14 91	26 61	0 50	17 82
11	49 88	0 30	14 07	27 11	0 52	16 50
21	50 18	0 31	13 07	27 63	0 53	15 45
May 1	50 49	0 31	11 96	28 16	0 52	14 72
11	50 80	0 31	10 77	28 68	0 52	14 31
21	51 11	0 29	9 55	29 20	0 49	14 24
31	51 40	0 28	8 33	29 69	0 46	14 52
June 10	51 68	0 25	7 15	30 15	0 41	15 14
20	51 93	0 22	6 06	30 56	0 37	16 09
30	52 15	0 18	5 08	30 93	0 30	17 35
July 10	52 33	0 14	4 24	31 23	0 22	18 88
20	52 47	0 10	3 56	31 45	0 16	20 64
30	52 57	0 05	3 05	31 61	0 07	22 57
Aug. 9	52 62	0 00	2 71	31 68	0 01	24 61
19	52 62	0 04	2 52	31 67	0 08	26 68
29	52 58	0 07	2 49	31 59	0 15	28 71
Sept. 8	52 51	0 12	2 58	31 44	0 22	30 61
18	52 39	0 13	2 78	31 22	0 26	32 32
28	52 26	0 16	3 06	30 96	0 29	33 76
Oct. 8	52 10	0 16	3 41	30 67	0 33	34 87
18	51 94	0 15	3 80	30 34	0 30	35 61
28	51 79	0 15	4 23	30 04	0 30	35 93
Nov. 7	51 64	0 13	4 67	29 74	0 27	35 83
17	51 51	0 10	5 12	29 47	0 23	35 30
27	51 41	0 07	5 58	29 24	0 17	34 36
Dec. 7	51 34	0 03	6 04	29 07	0 11	33 05
17	51 31	0 01	6 50	28 96	0 03	31 42
27	51 32	0 04	6 94	28 93	0 03	29 53
37	8 51 36	0 42	3 7 36	12 28 96	0 11	15 27 42

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	λ Ursæ Minoris.			α CYGNI.		
	R. A.	Dec. North.		R. A.	Dec. North.	
	^h 20	[°] 88		^h 20	[°] 44	
Jan. 1	^m 25 ^s 51 [°] 72	['] 56 ["] 1	48 ['] 39 ["] 80	^m 35 ^s 44 [°] 25	['] 41 ["] 28 [°] 38	['] 28 ["] 7
11	25 46 11	3 68	36 89	44 20	25 51	3 02
21	25 42 13	1 65	33 74	44 20	22 49	3 35
31	25 40 78		30 12	44 25	19 14	
		0 70				2 35
Feb. 10	25 41 48	2 73	26 84	44 36	16 19	2 74
20	25 44 21	4 60	23 68	44 51	13 45	2 43
March 2	25 48 81	6 26	20 79	44 71	11 02	2 01
12	25 55 07		18 25	44 95	9 01	
		7 66				1 53
22	26 2 73	8 72	16 18	45 23	7 48	0 98
April 1	26 11 45	9 40	14 63	45 55	6 50	0 40
11	26 20 85	9 72	13 66	45 89	6 10	0 19
21	26 30 57		13 30	46 24	6 29	
		9 69				0 77
May 1	26 40 26	9 29	13 54	46 62	7 06	1 31
11	26 49 55	8 58	14 38	46 98	8 37	1 32
21	26 58 13	7 57	15 77	47 34	10 19	2 25
31	27 5 70		17 65	47 67	12 44	
		6 34				2 62
June 10	27 12 04	4 93	19 99	47 99	15 06	2 90
20	27 16 97	3 38	22 69	48 26	17 96	3 11
30	27 20 35	1 70	25 67	48 50	21 07	3 24
July 10	27 22 05		28 87	48 68	24 31	
		0 05				3 28
20	27 22 10	1 68	32 20	48 81	27 59	3 24
30	27 20 42	3 34	35 58	48 89	30 83	3 13
Aug. 9	27 17 08	4 94	38 94	48 90	33 96	2 97
19	27 12 14		42 20	48 87	36 93	
		6 43				2 72
29	27 5 71	7 84	45 30	48 77	39 65	2 43
Sept. 8	26 57 87	9 04	48 16	48 63	42 08	2 08
18	26 48 83	10 10	50 73	48 45	44 16	1 70
28	26 38 73		52 95	48 23	45 86	
		10 97				1 27
Oct. 8	26 27 76	11 61	54 75	47 99	47 13	0 82
18	26 16 15	12 02	56 11	47 73	47 95	0 32
28	26 4 13	12 12	56 96	47 46	48 27	0 17
Nov. 7	25 52 01		57 27	47 20	48 10	
		11 98				0 67
17	25 40 03	11 49	57 04	46 95	47 43	1 17
27	25 28 54	10 72	56 25	46 72	46 26	1 64
Dec. 7	25 17 82	9 62	54 89	46 52	44 62	2 07
17	25 8 20		53 03	46 36	42 55	
		8 24				2 45
27	24 59 96	6 58	50 69	46 23	40 10	2 73
37	24 53 38		48 47 97	35 46 16	41 37 37	

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	61 ¹ Cygni.		ζ Cygni.		α Cephei.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	20 ^h 59 ^m	37 ^o 55 ⁱ	21 ^h 5 ^m	29 ^o 32 ⁱ	21 ^h 14 ^m	61 ^o 52 ⁱ
Jan. 1	26 ^s 03 ^s	77 ^s 63 ^s	50 ^s 48 ^s	60 ^s 94 ^s	34 ^s 07 ^s	68 ^s 85 ^s
11	25 ^s 99 ^s 0 ^s 04	75 ^s 17 ^s 2 ^s 46	50 ^s 44 ^s 0 ^s 04	58 ^s 67 ^s 2 ^s 27	33 ^s 86 ^s 0 ^s 21	66 ^s 08 ^s 2 ^s 77
21	25 ^s 98 ^s 0 ^s 01	72 ^s 56 ^s 2 ^s 61	50 ^s 43 ^s 0 ^s 01	56 ^s 29 ^s 2 ^s 38	33 ^s 71 ^s 0 ^s 15	63 ^s 03 ^s 3 ^s 05
31	26 ^s 02 ^s 0 ^s 04	69 ^s 89 ^s 2 ^s 67	50 ^s 46 ^s 0 ^s 03	53 ^s 87 ^s 2 ^s 42	33 ^s 65 ^s 0 ^s 06	59 ^s 80 ^s 3 ^s 23
	* 0 ^s 09	2 ^s 87	* 0 ^s 08	2 ^s 59	* 0 ^s 01	3 ^s 61
Feb. 10	26 ^s 11 ^s 0 ^s 14	67 ^s 02 ^s 2 ^s 44	50 ^s 54 ^s 0 ^s 12	51 ^s 28 ^s 2 ^s 17	33 ^s 66 ^s 0 ^s 11	56 ^s 19 ^s 3 ^s 20
20	26 ^s 25 ^s 0 ^s 16	64 ^s 58 ^s 2 ^s 16	50 ^s 66 ^s 0 ^s 15	49 ^s 11 ^s 1 ^s 92	33 ^s 77 ^s 0 ^s 18	52 ^s 99 ^s 2 ^s 99
Mar. 2	26 ^s 41 ^s 0 ^s 22	62 ^s 42 ^s 1 ^s 80	50 ^s 81 ^s 0 ^s 19	47 ^s 19 ^s 1 ^s 57	33 ^s 95 ^s 0 ^s 26	50 ^s 00 ^s 2 ^s 65
12	26 ^s 63 ^s 0 ^s 25	60 ^s 62 ^s 1 ^s 35	51 ^s 00 ^s 0 ^s 22	45 ^s 62 ^s 1 ^s 17	34 ^s 21 ^s 0 ^s 33	47 ^s 35 ^s 2 ^s 23
	0 ^s 28	0 ^s 86	0 ^s 25	0 ^s 78	0 ^s 39	45 ^s 12 ^s 1 ^s 72
April 1	27 ^s 16 ^s 0 ^s 32	59 ^s 27 ^s 0 ^s 33	51 ^s 47 ^s 0 ^s 28	44 ^s 45 ^s 0 ^s 21	34 ^s 54 ^s 0 ^s 44	43 ^s 40 ^s 1 ^s 15
11	27 ^s 48 ^s 0 ^s 33	58 ^s 08 ^s 0 ^s 23	51 ^s 75 ^s 0 ^s 30	43 ^s 54 ^s 0 ^s 30	35 ^s 37 ^s 0 ^s 48	42 ^s 25 ^s 0 ^s 53
21	27 ^s 81 ^s 0 ^s 35	58 ^s 31 ^s 0 ^s 77	52 ^s 05 ^s 0 ^s 32	43 ^s 84 ^s 0 ^s 78	35 ^s 85 ^s 0 ^s 50	41 ^s 72 ^s 0 ^s 08
May 1	28 ^s 16 ^s 0 ^s 36	59 ^s 08 ^s 1 ^s 28	52 ^s 37 ^s 0 ^s 32	44 ^s 62 ^s 1 ^s 25	36 ^s 35 ^s 0 ^s 51	41 ^s 80 ^s 0 ^s 70
11	28 ^s 52 ^s 0 ^s 35	60 ^s 36 ^s 1 ^s 77	52 ^s 69 ^s 0 ^s 33	45 ^s 87 ^s 1 ^s 67	36 ^s 86 ^s 0 ^s 50	42 ^s 50 ^s 1 ^s 28
21	28 ^s 87 ^s 0 ^s 34	62 ^s 13 ^s 2 ^s 18	53 ^s 02 ^s 0 ^s 32	47 ^s 54 ^s 2 ^s 04	37 ^s 36 ^s 0 ^s 49	43 ^s 78 ^s 1 ^s 82
31	29 ^s 21 ^s 0 ^s 32	64 ^s 31 ^s 2 ^s 53	53 ^s 34 ^s 0 ^s 30	49 ^s 58 ^s 2 ^s 35	37 ^s 85 ^s 0 ^s 45	45 ^s 60 ^s 2 ^s 31
June 10	29 ^s 53 ^s 0 ^s 30	66 ^s 84 ^s 2 ^s 82	53 ^s 64 ^s 0 ^s 27	51 ^s 93 ^s 2 ^s 58	38 ^s 30 ^s 0 ^s 40	47 ^s 91 ^s 2 ^s 72
20	29 ^s 83 ^s 0 ^s 26	69 ^s 66 ^s 3 ^s 02	53 ^s 91 ^s 0 ^s 25	54 ^s 51 ^s 2 ^s 74	38 ^s 70 ^s 0 ^s 35	50 ^s 63 ^s 3 ^s 05
30	30 ^s 09 ^s 0 ^s 21	72 ^s 68 ^s 3 ^s 15	54 ^s 16 ^s 0 ^s 21	57 ^s 25 ^s 2 ^s 84	39 ^s 05 ^s 0 ^s 28	53 ^s 68 ^s 3 ^s 31
July 10	30 ^s 30 ^s 0 ^s 17	75 ^s 83 ^s 3 ^s 20	54 ^s 37 ^s 0 ^s 17	60 ^s 09 ^s 2 ^s 85	39 ^s 33 ^s 0 ^s 20	56 ^s 99 ^s 3 ^s 48
20	30 ^s 47 ^s 0 ^s 12	79 ^s 03 ^s 3 ^s 18	54 ^s 54 ^s 0 ^s 12	62 ^s 94 ^s 2 ^s 81	39 ^s 53 ^s 0 ^s 13	60 ^s 47 ^s 3 ^s 57
30	30 ^s 59 ^s 0 ^s 07	82 ^s 21 ^s 3 ^s 09	54 ^s 66 ^s 0 ^s 07	65 ^s 75 ^s 2 ^s 70	39 ^s 66 ^s 0 ^s 03	64 ^s 04 ^s 3 ^s 58
Aug. 9	30 ^s 66 ^s 0 ^s 02	85 ^s 30 ^s 2 ^s 94	54 ^s 73 ^s 0 ^s 03	68 ^s 45 ^s 2 ^s 55	39 ^s 71 ^s 0 ^s 11	67 ^s 62 ^s 3 ^s 51
19	30 ^s 68 ^s 0 ^s 04	88 ^s 24 ^s 2 ^s 71	54 ^s 76 ^s 0 ^s 02	71 ^s 00 ^s 2 ^s 32	39 ^s 68 ^s 0 ^s 18	71 ^s 13 ^s 3 ^s 36
29	30 ^s 64 ^s 0 ^s 08	90 ^s 95 ^s 2 ^s 46	54 ^s 74 ^s 0 ^s 07	73 ^s 32 ^s 2 ^s 07	39 ^s 57 ^s 0 ^s 18	74 ^s 49 ^s 3 ^s 15
Sept. 8	30 ^s 56 ^s 0 ^s 12	93 ^s 41 ^s 2 ^s 16	54 ^s 67 ^s 0 ^s 10	75 ^s 39 ^s 1 ^s 78	39 ^s 39 ^s 0 ^s 25	77 ^s 64 ^s 2 ^s 87
18	30 ^s 44 ^s 0 ^s 16	95 ^s 57 ^s 1 ^s 79	54 ^s 57 ^s 0 ^s 14	77 ^s 17 ^s 1 ^s 46	39 ^s 14 ^s 0 ^s 31	80 ^s 51 ^s 2 ^s 52
28	30 ^s 28 ^s 0 ^s 18	97 ^s 36 ^s 1 ^s 41	54 ^s 43 ^s 0 ^s 16	78 ^s 63 ^s 1 ^s 09	38 ^s 83 ^s 0 ^s 35	83 ^s 03 ^s 2 ^s 11
Oct. 7	30 ^s 10 ^s 0 ^s 20	98 ^s 77 ^s 0 ^s 99	54 ^s 27 ^s 0 ^s 18	79 ^s 72 ^s 0 ^s 72	38 ^s 48 ^s 0 ^s 39	85 ^s 14 ^s 1 ^s 66
17	29 ^s 90 ^s 0 ^s 21	99 ^s 76 ^s 0 ^s 55	54 ^s 09 ^s 0 ^s 19	80 ^s 44 ^s 0 ^s 34	38 ^s 09 ^s 0 ^s 42	86 ^s 80 ^s 1 ^s 16
27	29 ^s 69 ^s 0 ^s 22	100 ^s 31 ^s 0 ^s 09	53 ^s 90 ^s 0 ^s 19	80 ^s 78 ^s 0 ^s 08	37 ^s 67 ^s 0 ^s 43	87 ^s 96 ^s 0 ^s 63
Nov. 7	29 ^s 47 ^s 0 ^s 20	100 ^s 40 ^s 0 ^s 37	53 ^s 71 ^s 0 ^s 18	80 ^s 70 ^s 0 ^s 48	37 ^s 24 ^s 0 ^s 43	88 ^s 59 ^s 0 ^s 06
17	29 ^s 27 ^s 0 ^s 19	100 ^s 03 ^s 0 ^s 83	53 ^s 53 ^s 0 ^s 17	80 ^s 22 ^s 0 ^s 87	36 ^s 81 ^s 0 ^s 41	88 ^s 65 ^s 0 ^s 51
27	29 ^s 08 ^s 0 ^s 16	99 ^s 20 ^s 1 ^s 27	53 ^s 36 ^s 0 ^s 15	79 ^s 35 ^s 1 ^s 25	36 ^s 40 ^s 0 ^s 39	88 ^s 14 ^s 1 ^s 09
Dec. 7	28 ^s 92 ^s 0 ^s 14	97 ^s 93 ^s 1 ^s 68	53 ^s 21 ^s 0 ^s 12	78 ^s 10 ^s 1 ^s 61	36 ^s 01 ^s 0 ^s 36	87 ^s 05 ^s 1 ^s 63
17	28 ^s 78 ^s 0 ^s 10	96 ^s 25 ^s 2 ^s 04	53 ^s 09 ^s 0 ^s 09	76 ^s 49 ^s 1 ^s 90	35 ^s 65 ^s 0 ^s 30	85 ^s 42 ^s 2 ^s 12
27	28 ^s 68 ^s 0 ^s 07	94 ^s 21 ^s 2 ^s 31	53 ^s 00 ^s 0 ^s 06	74 ^s 59 ^s 2 ^s 14	35 ^s 35 ^s 0 ^s 25	83 ^s 30 ^s 2 ^s 55
37	28 ^s 61 ^s	91 ^s 90 ^s	52 ^s 94 ^s	72 ^s 45 ^s	35 ^s 10 ^s	80 ^s 75 ^s

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	β AQUARI.				β CEPHEI.				ϵ PEGASI.			
	R. A.		Dec. South.		R. A.		Dec. North.		R. A.		Dec. North.	
	21	22	6	17	21	26	69	49	21	36	9	6
Jan. 1	46° 53'	0° 01'	56° 24'	0° 55'	25° 35'	0° 36'	66° 61'	2° 54'	0° 12'	0° 03'	60° 39'	1° 38'
11	46° 52'	0° 01'	56° 29'	0° 55'	25° 39'	0° 37'	63° 97'	2° 57'	0° 09'	0° 01'	59° 05'	1° 36'
21	46° 53'	0° 01'	57° 18'	0° 48'	25° 72'	0° 16'	61° 00'	3° 21'	0° 08'	0° 02'	57° 69'	1° 34'
31	46° 58'	0° 05'	57° 36'	0° 36'	25° 56'	0° 05'	57° 79'	3° 32'	0° 10'	0° 06'	56° 35'	1° 25'
Feb. 10	46° 56'	0° 12'	58° 32'	0° 21'	25° 51'	0° 06'	54° 47'	3° 54'	0° 16'	0° 10'	55° 10'	1° 19'
20	47° 08'	0° 14'	58° 53'	0° 02'	25° 57'	0° 18'	50° 83'	3° 13'	0° 26'	0° 12'	53° 91'	0° 56'
Mar. 2	47° 22'	0° 17'	58° 51'	0° 23'	25° 75'	0° 30'	47° 70'	2° 56'	0° 38'	0° 15'	53° 05'	0° 59'
12	47° 39'	0° 21'	58° 28'	0° 47'	26° 05'	0° 39'	44° 84'	2° 46'	0° 53'	0° 19'	52° 46'	0° 29'
22	47° 60'	0° 23'	57° 81'	0° 71'	26° 44'	0° 48'	42° 38'	1° 98'	0° 72'	0° 21'	52° 17'	0° 05'
April 1	47° 83'	0° 25'	57° 10'	0° 95'	26° 92'	0° 56'	40° 40'	1° 43'	0° 93'	0° 25'	52° 22'	0° 41'
11	48° 08'	0° 28'	56° 15'	1° 16'	27° 18'	0° 62'	38° 97'	0° 82'	1° 18'	0° 26'	52° 63'	0° 75'
21	48° 36'	0° 29'	54° 99'	1° 36'	28° 10'	0° 68'	38° 15'	0° 22'	1° 44'	0° 29'	53° 38'	1° 08'
May 1	48° 65'	0° 31'	53° 63'	1° 51'	28° 78'	0° 67'	37° 93'	0° 42'	1° 73'	0° 30'	54° 46'	1° 39'
11	48° 96'	0° 31'	52° 12'	1° 62'	29° 45'	0° 66'	38° 35'	1° 02'	2° 03'	0° 31'	55° 85'	1° 65'
21	49° 27'	0° 31'	50° 50'	1° 69'	30° 11'	0° 63'	39° 37'	1° 58'	2° 34'	0° 31'	57° 50'	1° 86'
31	49° 58'	0° 30'	48° 81'	1° 69'	30° 74'	0° 59'	40° 95'	2° 10'	2° 65'	0° 30'	59° 36'	2° 02'
June 10	49° 88'	0° 29'	47° 12'	1° 67'	31° 33'	0° 52'	43° 05'	2° 55'	2° 95'	0° 29'	61° 38'	2° 12'
20	50° 17'	0° 26'	45° 45'	1° 58'	31° 85'	0° 46'	45° 60'	2° 92'	3° 24'	0° 26'	63° 50'	2° 15'
30	50° 43'	0° 24'	43° 87'	1° 45'	32° 31'	0° 36'	48° 52'	3° 24'	3° 50'	0° 23'	65° 65'	2° 14'
July 10	50° 67'	0° 19'	42° 42'	1° 30'	32° 67'	0° 27'	51° 76'	3° 45'	3° 73'	0° 20'	67° 79'	2° 07'
20	50° 86'	0° 16'	41° 12'	1° 12'	32° 94'	0° 17'	55° 21'	3° 59'	3° 93'	0° 16'	69° 86'	1° 96'
30	51° 02'	0° 12'	40° 00'	0° 91'	33° 11'	0° 07'	58° 80'	3° 65'	4° 09'	0° 12'	71° 82'	1° 80'
Aug. 9	51° 14'	0° 07'	39° 09'	0° 71'	33° 18'	0° 05'	62° 45'	3° 63'	4° 21'	0° 07'	73° 62'	1° 62'
19	51° 21'	0° 02'	38° 38'	0° 50'	33° 13'	0° 14'	66° 08'	3° 52'	4° 28'	0° 03'	75° 24'	1° 41'
29	51° 23'	0° 01'	37° 88'	0° 30'	32° 99'	0° 25'	69° 60'	3° 36'	4° 31'	0° 01'	76° 65'	1° 18'
Sept. 8	51° 22'	0° 06'	37° 58'	0° 11'	32° 74'	0° 33'	72° 96'	3° 11'	4° 30'	0° 05'	77° 83'	0° 94'
18	51° 16'	0° 08'	37° 47'	0° 05'	32° 41'	0° 42'	76° 07'	2° 78'	4° 25'	0° 08'	78° 77'	0° 70'
28	51° 08'	0° 12'	37° 52'	0° 20'	31° 99'	0° 48'	78° 85'	2° 42'	4° 17'	0° 11'	79° 47'	0° 46'
Oct. 8	50° 96'	0° 13'	37° 72'	0° 33'	31° 51'	0° 54'	81° 27'	1° 98'	4° 06'	0° 13'	79° 93'	0° 21'
18	50° 83'	0° 14'	38° 05'	0° 42'	30° 97'	0° 58'	83° 25'	1° 48'	3° 93'	0° 14'	80° 14'	0° 02'
28	50° 69'	0° 14'	38° 47'	0° 51'	30° 39'	0° 61'	84° 73'	0° 96'	3° 79'	0° 14'	80° 12'	0° 25'
Nov. 7	50° 55'	0° 13'	38° 98'	0° 58'	29° 78'	0° 62'	85° 69'	0° 37'	3° 65'	0° 14'	79° 87'	0° 48'
17	50° 42'	0° 12'	39° 56'	0° 62'	29° 16'	0° 60'	86° 06'	0° 20'	3° 51'	0° 13'	79° 39'	0° 68'
27	50° 30'	0° 11'	40° 18'	0° 66'	28° 56'	0° 59'	85° 86'	0° 80'	3° 38'	0° 12'	78° 71'	0° 87'
Dec. 7	50° 19'	0° 08'	40° 84'	0° 67'	27° 97'	0° 53'	85° 06'	1° 38'	3° 26'	0° 09'	77° 84'	1° 03'
17	50° 11'	0° 05'	41° 51'	0° 68'	27° 44'	0° 49'	83° 68'	1° 92'	3° 17'	0° 08'	76° 79'	1° 18'
27	50° 06'	0° 02'	42° 19'	0° 65'	26° 95'	0° 40'	81° 76'	2° 39'	3° 09'	0° 04'	75° 61'	1° 28'
37	50° 04'		42° 84'		26° 55'		79° 37'		3° 05'		74° 33'	

FIXED STARS, 1834.

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APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α AQUARI.		α Gruis.		ζ Pegasi.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 21 ^m 57	[°] 1 ['] 7	^h 21 ^m 57	[°] 47 ['] 45	^h 22 ^m 33	[°] 9 ['] 57
Jan. 1	13 ^s 51 ^s	28 ["] 43 ["]	40 ^s 99 ^s	53 ["] 79 ["]	9 ^s 40 ^s	57 ["] 77 ["]
11	13 ^s 47 ^s 0 ["] 04	29 ["] 27 ["] 0 ["] 84	40 ^s 91 ^s 0 ["] 08	52 ["] 38 ["] 1 ["] 41	9 ^s 32 ^s 0 ["] 08	56 ["] 63 ["] 1 ["] 14
21	13 ^s 45 ^s 0 ["] 02	30 ["] 06 ["] 0 ["] 79	40 ^s 88 ^s 0 ["] 03	50 ["] 68 ["] 1 ["] 70	9 ^s 27 ^s 0 ["] 05	55 ["] 44 ["] 1 ["] 19
31	13 ^s 47 ^s 0 ["] 02	30 ["] 78 ["] 0 ["] 72	40 ^s 89 ^s 0 ["] 01	48 ["] 72 ["] 1 ["] 96	9 ^s 25 ^s 0 ["] 02	54 ["] 25 ["] 1 ["] 19
	0 ["] 04	0 ["] 59	0 ["] 05	2 ["] 16	0 ["] 01	1 ["] 14
Feb. 10	13 ^s 51 ^s	31 ["] 37 ["]	40 ^s 94 ^s	46 ["] 56 ["]	9 ^s 24 ^s	53 ["] 11 ["]
20	13 ^s 59 ^s 0 ["] 08	31 ["] 85 ["] 0 ["] 48	41 ^s 06 ^s 0 ["] 12	43 ["] 99 ["] 2 ["] 57	9 ^s 27 ^s 0 ["] 03	52 ["] 09 ["] 1 ["] 02
Mar. 2	13 ^s 69 ^s 0 ["] 10	32 ["] 07 ["] 0 ["] 22	41 ^s 21 ^s 0 ["] 15	41 ["] 54 ["] 2 ["] 45	* 9 ^s 34 ^s 0 ["] 07	51 ["] 17 ["] 0 ["] 92
12	13 ^s 83 ^s 0 ["] 14	32 ["] 06 ["] 0 ["] 01	41 ^s 41 ^s 0 ["] 20	39 ["] 03 ["] 2 ["] 51	9 ^s 44 ^s 0 ["] 10	50 ["] 57 ["] 0 ["] 60
	0 ["] 17	0 ["] 26	0 ["] 25	2 ["] 52	0 ["] 13	0 ["] 37
22	14 ^s 00 ^s	31 ["] 80 ["]	41 ^s 66 ^s	36 ["] 51 ["]	9 ^s 57 ^s	50 ["] 20 ["]
April 1	14 ^s 20 ^s 0 ["] 20	31 ["] 26 ["] 0 ["] 54	41 ^s 94 ^s 0 ["] 28	34 ["] 02 ["] 2 ["] 49	9 ^s 74 ^s 0 ["] 17	50 ["] 23 ["] 0 ["] 03
11	14 ^s 43 ^s 0 ["] 23	30 ["] 44 ["] 0 ["] 82	42 ^s 27 ^s 0 ["] 33	31 ["] 63 ["] 2 ["] 39	9 ^s 95 ^s 0 ["] 21	50 ["] 54 ["] 0 ["] 81
21	14 ^s 68 ^s 0 ["] 25	29 ["] 37 ["] 1 ["] 07	42 ^s 63 ^s 0 ["] 36	29 ["] 36 ["] 2 ["] 27	10 ^s 18 ^s 0 ["] 23	51 ["] 19 ["] 0 ["] 65
	0 ["] 28	1 ["] 32	0 ["] 39	2 ["] 07	0 ["] 26	0 ["] 98
May 1	14 ^s 96 ^s	28 ["] 05 ["]	43 ^s 02 ^s	27 ["] 29 ["]	10 ^s 44 ^s	52 ["] 17 ["]
11	15 ^s 26 ^s 0 ["] 30	26 ["] 51 ["] 1 ["] 54	43 ^s 43 ^s 0 ["] 31	25 ["] 44 ["] 1 ["] 85	10 ^s 73 ^s 0 ["] 29	53 ["] 46 ["] 1 ["] 29
21	15 ^s 57 ^s 0 ["] 31	24 ["] 82 ["] 1 ["] 69	43 ^s 86 ^s 0 ["] 43	23 ["] 87 ["] 1 ["] 57	11 ^s 03 ^s 0 ["] 30	55 ["] 02 ["] 1 ["] 56
31	15 ^s 88 ^s 0 ["] 31	23 ["] 00 ["] 1 ["] 82	44 ^s 29 ^s 0 ["] 43	22 ["] 66 ["] 1 ["] 21	11 ^s 34 ^s 0 ["] 31	56 ["] 81 ["] 1 ["] 79
	0 ["] 31	1 ["] 89	0 ["] 43	0 ["] 95	0 ["] 32	1 ["] 98
June 10	16 ^s 19 ^s	21 ["] 11 ["]	44 ^s 72 ^s	21 ["] 71 ["]	11 ^s 66 ^s	58 ["] 79 ["]
20	16 ^s 49 ^s 0 ["] 30	19 ["] 21 ["] 1 ["] 90	45 ^s 14 ^s 0 ["] 42	21 ["] 18 ["] 0 ["] 53	11 ^s 97 ^s 0 ["] 31	60 ["] 90 ["] 2 ["] 11
30	16 ^s 76 ^s 0 ["] 27	17 ["] 35 ["] 1 ["] 86	45 ^s 54 ^s 0 ["] 40	21 ["] 03 ["] 0 ["] 15	12 ^s 26 ^s 0 ["] 29	63 ["] 08 ["] 2 ["] 18
July 10	17 ^s 02 ^s 0 ["] 26	15 ["] 57 ["] 1 ["] 78	45 ^s 90 ^s 0 ["] 36	21 ["] 27 ["] 0 ["] 24	12 ^s 53 ^s 0 ["] 27	65 ["] 27 ["] 2 ["] 19
	0 ["] 22	1 ["] 66	0 ["] 32	0 ["] 62	0 ["] 24	2 ["] 16
20	17 ^s 24 ^s	13 ["] 91 ["]	46 ^s 22 ^s	21 ["] 89 ["]	12 ^s 77 ^s	67 ["] 43 ["]
30	17 ^s 42 ^s 0 ["] 18	12 ["] 43 ["] 1 ["] 48	46 ^s 48 ^s 0 ["] 26	22 ["] 86 ["] 0 ["] 97	12 ^s 98 ^s 0 ["] 21	69 ["] 49 ["] 2 ["] 06
Aug. 9	17 ^s 57 ^s 0 ["] 15	11 ["] 13 ["] 1 ["] 30	46 ^s 69 ^s 0 ["] 21	24 ["] 14 ["] 1 ["] 28	13 ^s 15 ^s 0 ["] 17	71 ["] 42 ["] 1 ["] 93
19	17 ^s 67 ^s 0 ["] 10	10 ["] 04 ["] 1 ["] 09	46 ^s 84 ^s 0 ["] 15	25 ["] 70 ["] 1 ["] 56	13 ^s 28 ^s 0 ["] 13	73 ["] 18 ["] 1 ["] 76
	0 ["] 05	0 ["] 87	0 ["] 08	1 ["] 76	0 ["] 09	1 ["] 57
29	17 ^s 72 ^s	9 ["] 17 ["]	46 ^s 92 ^s	27 ["] 46 ["]	13 ^s 37 ^s	74 ["] 75 ["]
Sept. 8	17 ^s 74 ^s 0 ["] 02	8 ["] 53 ["] 0 ["] 64	46 ^s 93 ^s 0 ["] 01	29 ["] 35 ["] 1 ["] 89	13 ^s 41 ^s 0 ["] 04	76 ["] 10 ["] 1 ["] 35
18	17 ^s 71 ^s 0 ["] 03	8 ["] 10 ["] 0 ["] 43	46 ^s 89 ^s 0 ["] 04	31 ["] 29 ["] 1 ["] 94	13 ^s 42 ^s 0 ["] 01	77 ["] 21 ["] 1 ["] 11
28	17 ^s 65 ^s 0 ["] 06	7 ["] 88 ["] 0 ["] 22	46 ^s 80 ^s 0 ["] 09	33 ["] 21 ["] 1 ["] 92	13 ^s 38 ^s 0 ["] 04	78 ["] 09 ["] 0 ["] 88
	0 ["] 09	0 ["] 04	0 ["] 15	1 ["] 81	0 ["] 06	0 ["] 64
Oct. 8	17 ^s 56 ^s	7 ["] 84 ["]	46 ^s 65 ^s	35 ["] 02 ["]	13 ^s 32 ^s	78 ["] 73 ["]
18	17 ^s 45 ^s 0 ["] 11	7 ["] 98 ["] 0 ["] 14	46 ^s 47 ^s 0 ["] 18	36 ["] 64 ["] 1 ["] 62	13 ^s 23 ^s 0 ["] 09	79 ["] 13 ["] 0 ["] 40
28	17 ^s 33 ^s 0 ["] 12	8 ["] 27 ["] 0 ["] 29	46 ^s 26 ^s 0 ["] 21	38 ["] 00 ["] 1 ["] 36	13 ^s 13 ^s 0 ["] 10	79 ["] 29 ["] 0 ["] 16
Nov. 7	17 ^s 20 ^s 0 ["] 13	8 ["] 69 ["] 0 ["] 42	46 ^s 04 ^s 0 ["] 22	39 ["] 05 ["] 1 ["] 05	13 ^s 01 ^s 0 ["] 12	79 ["] 23 ["] 0 ["] 06
	0 ["] 13	0 ["] 54	0 ["] 22	0 ["] 69	0 ["] 13	0 ["] 28
17	17 ^s 07 ^s	9 ["] 23 ["]	45 ^s 82 ^s	39 ["] 74 ["]	12 ^s 88 ^s	78 ["] 95 ["]
27	16 ^s 94 ^s 0 ["] 13	9 ["] 87 ["] 0 ["] 64	45 ^s 60 ^s 0 ["] 22	40 ["] 04 ["] 0 ["] 30	12 ^s 76 ^s 0 ["] 12	78 ["] 48 ["] 0 ["] 47
Dec. 7	16 ^s 83 ^s 0 ["] 11	10 ["] 59 ["] 0 ["] 72	45 ^s 41 ^s 0 ["] 19	39 ["] 93 ["] 0 ["] 11	12 ^s 63 ^s 0 ["] 13	77 ["] 81 ["] 0 ["] 67
17	16 ^s 74 ^s 0 ["] 09	11 ["] 35 ["] 0 ["] 76	45 ^s 24 ^s 0 ["] 17	39 ["] 42 ["] 0 ["] 51	12 ^s 52 ^s 0 ["] 11	76 ["] 99 ["] 0 ["] 82
	0 ["] 08	0 ["] 82	0 ["] 14	0 ["] 89	0 ["] 10	0 ["] 98
27	16 ^s 66 ^s	12 ["] 17 ["]	45 ^s 10 ^s	38 ["] 53 ["]	12 ^s 42 ^s	76 ["] 01 ["]
37	16 ^s 61 ^s 0 ["] 05	12 ["] 99 ["] 0 ["] 82	45 ^s 01 ^s 0 ["] 09	37 ["] 29 ["] 1 ["] 24	12 ^s 34 ^s 0 ["] 08	74 ["] 93 ["] 1 ["] 08

APPARENT PLACES OF THE PRINCIPAL FIXED STARS,
FOR THE UPPER TRANSIT AT GREENWICH.

1834.	α PISCIS AUST.		α PEGASI.		ϵ PISCUM.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. N.
	^h 22 48 ^m	^o 30 29 ⁱ	^h 22 56 ^m	^o 14 18 ⁱ	^h 23 31 ^m	^o 4 4 ⁱ
Jan. 1	^s 25 ^a 67 ^s	^h 74 ^h 65 ^h	^s 28 ^a 32 ^s	^h 48 ^h 31 ^h	^s 23 ^a 50 ^s	^h 32 ^h 69 ^h
11	25 58 0 ⁰⁹	74 27 0 ³⁸	28 21 0 ¹¹	47 13 1 ¹⁸	23 40 0 ¹⁰	31 84
21	25 52 0 ⁰⁶	73 60 0 ⁶⁷	28 14 0 ⁰⁷	45 87 1 ²⁶	23 32 0 ⁰⁸	31 00
31	25 48 0 ⁰⁴	72 67 0 ⁹³	28 09 0 ⁰⁵	44 56 1 ³¹	23 25 0 ⁰⁷	30 20
	0 ⁰¹	1 ¹⁸	0 ⁰³	1 ²⁹	0 ⁰⁵	
Feb. 10	25 47	71 49	28 06	43 27	23 20	29 46
20	25 50 0 ⁰³	70 07 1 ⁴²	28 06 0 ⁰⁰	42 07 1 ²⁰	23 18 0 ⁰²	28 84
Mar. 2	25 56 0 ⁰⁶	68 44 1 ⁶³	28 10 0 ⁰⁴	41 01 1 ⁰⁶	23 18 0 ⁰⁰	28 38
12	* 25 66 0 ¹⁰	66 44 2 ⁰⁰	* 28 18 0 ⁰⁸	40 08 0 ⁹³	23 21 0 ⁰³	28 12
	0 ¹⁵	2 ⁰⁰	0 ¹¹	0 ⁵⁷	* 0 ⁰⁹	
April 22	25 81	64 44	28 29	39 51	23 30	28 10
1	25 98 0 ¹⁷	62 33 2 ¹¹	28 44 0 ¹⁵	39 24 0 ²⁷	23 42 0 ¹²	28 36
11	26 20 0 ²²	60 13 2 ²⁰	28 62 0 ¹⁸	39 31 0 ⁰⁷	23 57 0 ¹⁵	28 90
21	26 45 0 ²⁵	57 88 2 ²⁵	28 84 0 ²²	39 73 0 ⁴²	23 76 0 ¹⁹	29 72
	0 ²⁸	2 ²⁵	0 ²⁶	0 ⁷⁶	0 ²²	
May 1	26 73	55 63	29 10	40 49	23 98	30 81
11	27 05 0 ³²	53 43 2 ²⁰	29 38 0 ²⁸	41 60 1 ¹¹	24 24 0 ²⁶	32 18
21	27 38 0 ³³	51 33 2 ¹⁰	29 67 0 ²⁹	43 03 1 ⁴³	24 52 0 ²⁸	33 78
31	27 73 0 ³⁵	49 39 1 ⁹⁴	29 99 0 ³²	44 72 1 ⁶⁹	24 82 0 ³⁰	35 56
	0 ³⁵	1 ⁷⁴	0 ³¹	1 ⁹³	0 ³¹	
June 10	28 08	47 65	30 30	46 65	25 13	37 50
20	28 44 0 ³⁶	46 16 1 ⁴⁹	30 62 0 ³²	48 76 2 ¹¹	25 45 0 ³²	39 53
30	28 78 0 ³⁴	44 95 1 ²¹	30 93 0 ³¹	50 98 2 ²²	25 76 0 ³¹	41 59
July 10	29 11 0 ³³	44 06 0 ⁸⁹	31 21 0 ²⁸	53 27 2 ²⁹	26 06 0 ³⁰	43 65
	0 ³⁰	0 ⁵⁵	0 ²⁶	2 ²⁹	0 ²⁸	
20	29 41 0 ²⁶	43 51 0 ²¹	31 47 0 ²³	55 56 2 ²⁴	26 34 0 ²⁵	45 64
30	29 67 0 ²²	43 30 0 ¹³	31 70 0 ¹⁹	57 80 2 ¹⁵	26 59 0 ²²	47 52
Aug. 9	29 89 0 ¹⁷	43 43 0 ⁴⁶	31 89 0 ¹⁵	59 95 2 ⁰¹	26 81 0 ¹⁸	49 25
19	30 06 0 ¹³	43 89 0 ⁷⁵	32 04 0 ¹¹	61 96 1 ⁸³	26 99 0 ¹⁵	50 79
	0 ⁰⁷	1 ⁰⁰	0 ⁰⁶	1 ⁶³	0 ¹⁰	
Sept. 29	30 19	44 64	32 15	63 79	27 14	52 12
8	30 26 0 ⁰⁷	45 64 1 ²⁰	32 21 0 ⁰³	65 42 1 ⁴⁰	27 24 0 ⁰⁷	53 22
18	30 29 0 ⁰³	46 84 1 ³⁴	32 24 0 ⁰¹	66 82 1 ¹⁶	27 31 0 ⁰³	54 09
28	30 27 0 ⁰⁶	48 18 1 ⁴¹	32 23 0 ⁰⁴	67 98 0 ⁹²	27 34 0 ⁰¹	54 72
	0 ⁰⁸	1 ⁴¹	0 ⁰⁸	0 ⁶⁶	0 ⁰⁴	
Oct. 8	30 21	49 59	32 19	68 90	27 33	55 13
18	30 13 0 ¹²	51 00 1 ³⁶	32 11 0 ⁰⁹	69 56 0 ⁴²	27 29 0 ⁰⁶	55 31
28	30 01 0 ¹⁴	52 36 1 ²³	32 02 0 ¹¹	69 98 0 ¹⁶	27 23 0 ⁰⁸	55 32
Nov. 7	29 87 0 ¹⁴	53 59 1 ⁰⁶	31 91 0 ¹²	70 14 0 ⁰⁹	27 15 0 ⁰⁹	55 13
	0 ¹⁵	0 ⁸⁴	0 ¹²	0 ³¹	0 ¹¹	
17	29 73	54 65	31 79	70 05	27 06	54 79
27	29 58 0 ¹⁴	55 49 0 ⁵⁹	31 67 0 ¹³	69 74 0 ⁵⁵	26 95 0 ¹¹	54 32
Dec. 7	29 44 0 ¹¹	56 08 0 ⁰³	31 54 0 ¹¹	69 19 0 ⁹³	26 84 0 ¹⁰	53 73
17	29 30 0 ¹⁰	56 40 0 ²⁶	31 42 0 ⁰⁹	68 43 1 ⁰⁸	26 73 0 ¹⁰	53 04
	0 ¹⁰	0 ²⁶	0 ⁰⁹	0 ⁵⁰	0 ¹⁰	
27	29 19	56 43	31 31	67 50	26 63	52 28
37	29 09 0 ¹⁰	56 17 0 ²⁶	31 22 0 ⁰⁹	66 42 1 ⁰⁸	26 53 0 ¹⁰	51 48

APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

1834.	γ Cephei.				α ANDROMEDÆ.			
	R. A.		Dec. North.		R. A.		Dec. North.	
	^h 23	^m 32	[°] 76	['] 42	^h 23	^m 59	[°] 28	['] 10
Jan. 1	^s 33 [·] 93	^s 0 [·] 85	["] 34 [·] 42	["] 0 [·] 99	^s 48 [·] 07	^s 0 [·] 14	["] 28 [·] 12	["] 1 [·] 00
11	33 [·] 08	0 [·] 78	33 [·] 43	1 [·] 55	47 [·] 93	0 [·] 13	27 [·] 12	1 [·] 23
21	32 [·] 30	0 [·] 70	31 [·] 88	2 [·] 08	47 [·] 80	0 [·] 12	25 [·] 89	1 [·] 44
31	31 [·] 60	0 [·] 57	29 [·] 80	2 [·] 50	47 [·] 68	0 [·] 10	24 [·] 45	1 [·] 55
Feb. 10	31 [·] 03	0 [·] 44	27 [·] 30	2 [·] 82	47 [·] 58	0 [·] 07	22 [·] 90	1 [·] 62
20	30 [·] 59	0 [·] 27	24 [·] 48	3 [·] 04	47 [·] 51	0 [·] 04	21 [·] 28	1 [·] 61
Mar. 2	30 [·] 32	0 [·] 10	21 [·] 44	3 [·] 12	47 [·] 47	0 [·] 01	19 [·] 67	1 [·] 53
12	30 [·] 22	0 [·] 10	18 [·] 32	3 [·] 37	47 [·] 46	0 [·] 05	18 [·] 14	1 [·] 35
22	30 [·] 32	0 [·] 27	14 [·] 95	2 [·] 89	47 [·] 51	0 [·] 09	16 [·] 79	1 [·] 22
April 1	30 [·] 59	0 [·] 44	12 [·] 06	2 [·] 59	47 [·] 60	0 [·] 13	15 [·] 57	0 [·] 80
11	31 [·] 03	0 [·] 59	9 [·] 47	2 [·] 22	47 [·] 73	0 [·] 18	14 [·] 77	0 [·] 46
21	31 [·] 62	0 [·] 72	7 [·] 25	1 [·] 75	47 [·] 91	0 [·] 22	14 [·] 31	0 [·] 08
May 1	32 [·] 34	0 [·] 83	5 [·] 50	1 [·] 23	48 [·] 13	0 [·] 26	14 [·] 23	0 [·] 31
11	33 [·] 17	0 [·] 90	4 [·] 27	0 [·] 67	48 [·] 39	0 [·] 30	14 [·] 54	0 [·] 71
21	34 [·] 07	0 [·] 96	3 [·] 60	0 [·] 08	48 [·] 69	0 [·] 31	15 [·] 25	1 [·] 08
31	35 [·] 03	0 [·] 98	3 [·] 52	0 [·] 49	49 [·] 00	0 [·] 34	16 [·] 33	1 [·] 43
June 10	36 [·] 01	0 [·] 98	4 [·] 01	1 [·] 07	49 [·] 34	0 [·] 34	17 [·] 76	1 [·] 75
20	36 [·] 99	0 [·] 92	5 [·] 08	1 [·] 59	49 [·] 68	0 [·] 34	19 [·] 51	2 [·] 01
30	37 [·] 91	0 [·] 87	6 [·] 67	2 [·] 10	50 [·] 02	0 [·] 33	21 [·] 52	2 [·] 23
July 10	38 [·] 78	0 [·] 80	8 [·] 77	2 [·] 53	50 [·] 35	0 [·] 31	23 [·] 75	2 [·] 39
20	39 [·] 58	0 [·] 69	11 [·] 30	2 [·] 92	50 [·] 66	0 [·] 28	26 [·] 14	2 [·] 48
30	40 [·] 27	0 [·] 58	14 [·] 22	3 [·] 23	50 [·] 94	0 [·] 25	28 [·] 62	2 [·] 53
Aug. 9	40 [·] 85	0 [·] 45	17 [·] 45	3 [·] 49	51 [·] 19	0 [·] 22	31 [·] 15	2 [·] 52
19	41 [·] 30	0 [·] 32	20 [·] 94	3 [·] 65	51 [·] 41	0 [·] 17	33 [·] 67	2 [·] 46
29	41 [·] 62	0 [·] 17	24 [·] 59	3 [·] 76	51 [·] 58	0 [·] 14	36 [·] 13	2 [·] 35
Sept. 8	41 [·] 79	0 [·] 04	28 [·] 35	3 [·] 78	51 [·] 72	0 [·] 09	38 [·] 48	2 [·] 20
18	41 [·] 83	0 [·] 10	32 [·] 13	3 [·] 72	51 [·] 81	0 [·] 06	40 [·] 68	2 [·] 02
28	41 [·] 73	0 [·] 24	35 [·] 85	3 [·] 59	51 [·] 87	0 [·] 01	42 [·] 70	1 [·] 80
Oct. 8	41 [·] 49	0 [·] 37	39 [·] 44	3 [·] 38	51 [·] 88	0 [·] 01	44 [·] 50	1 [·] 56
18	41 [·] 12	0 [·] 50	42 [·] 82	3 [·] 08	51 [·] 87	0 [·] 05	46 [·] 06	1 [·] 29
28	40 [·] 62	0 [·] 60	45 [·] 90	2 [·] 71	51 [·] 82	0 [·] 08	47 [·] 35	1 [·] 01
Nov. 7	40 [·] 02	0 [·] 70	48 [·] 61	2 [·] 27	51 [·] 74	0 [·] 09	48 [·] 36	0 [·] 72
17	39 [·] 32	0 [·] 78	50 [·] 88	1 [·] 76	51 [·] 65	0 [·] 11	49 [·] 08	0 [·] 39
27	38 [·] 54	0 [·] 84	52 [·] 64	1 [·] 20	51 [·] 54	0 [·] 13	49 [·] 47	0 [·] 08
Dec. 7	37 [·] 70	0 [·] 87	53 [·] 84	0 [·] 60	51 [·] 41	0 [·] 14	49 [·] 55	0 [·] 23
17	36 [·] 83	0 [·] 89	54 [·] 44	0 [·] 02	51 [·] 27	0 [·] 14	49 [·] 32	0 [·] 55
27	35 [·] 94	0 [·] 87	54 [·] 42	0 [·] 64	51 [·] 13	0 [·] 13	48 [·] 77	0 [·] 82
37	35 [·] 07		53 [·] 78		51 [·] 00		47 [·] 95	

The Apparent Places of the 100 Stars have been deduced from the Mean Places given at pp. 368—370, using the *Constants* given in the *Ast. Soc. Cat.* (excepting those for the 5 Polar Stars), and the *Variables* A, B, C, D, at pp. XXII. of each Month of the present Work; — the *Constants* *c* and *c'* for those Stars which have proper motion, having been previously corrected. For the 5 Polar Stars, the *Constants* have been computed for 1834 and 1835, and interpolated.

An additional correction ought, in strictness, to be applied to the *computed* Right Ascensions at Transit, for *daily* Aberration.

If ϕ denote the Latitude of the place, and δ the Declination of the Star, the correction (*in Time*) for the *Upper Transit* is

$$+ 0^{\text{m}}.0206 \cos \phi \sec \delta$$

and for the *Lower Transit*,

$$- 0^{\text{m}}.0206 \cos \phi \sec \delta$$

And for the 5 Polar Stars a further correction is necessary in Right Ascension and Declination, the terms

$$- 0^{\text{m}}.004 \sin 2\zeta \text{ and } - 0^{\text{m}}.090 \cos 2\zeta$$

omitted in the computation of the *Variables* C and D respectively, becoming in these instances of some importance.

These Corrections are given in the following Table, the Argument of which is the ζ 's True Longitude at the time of the Star's Transit.

TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2ϵ .

Arg.	α URS. MIN.		51 CEPHEI.		σ OCTANTIS.		δ URS. MIN.		λ URS. MIN.		Arg.
ϵ	R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	ϵ
0 180	→ .211	+ .02	+ .011	+ .09	→ .114	→ .09	→ .011	→ .09	→ .168	→ .07	90
1 181	→ .213	→ .02	→ .007	→ .09	→ .129	→ .09	→ .008	→ .09	→ .161	→ .07	91
2 182	→ .215	→ .02	+ .002	→ .09	→ .144	→ .09	→ .006	→ .09	→ .154	→ .08	92
3 183	→ .217	→ .02	→ .002	→ .09	→ .157	→ .09	→ .003	→ .09	→ .147	→ .08	93
4 184	→ .218	→ .01	→ .007	→ .09	→ .172	→ .08	→ .000	→ .09	→ .139	→ .08	94
5 185	→ .219	→ .01	→ .011	→ .09	→ .186	→ .08	+ .003	→ .09	→ .131	→ .08	95
6 186	→ .220	→ .01	→ .016	→ .09	→ .200	→ .08	→ .005	→ .09	→ .123	→ .08	96
7 187	→ .221	→ .00	→ .020	→ .09	→ .214	→ .08	→ .008	→ .09	→ .116	→ .08	97
8 188	→ .221	→ .00	→ .025	→ .09	→ .227	→ .08	→ .011	→ .09	→ .107	→ .08	98
9 189	→ .221	→ .00	→ .030	→ .09	→ .239	→ .08	→ .014	→ .09	→ .100	→ .08	99
10 190	→ .220	+ .00	→ .034	→ .09	→ .252	→ .08	→ .017	→ .09	→ .091	→ .08	100
11 191	→ .220	→ .01	→ .038	→ .09	→ .265	→ .07	→ .019	→ .09	→ .083	→ .09	101
12 192	→ .219	→ .01	→ .042	→ .09	→ .277	→ .07	→ .022	→ .09	→ .074	→ .09	102
13 193	→ .218	→ .01	→ .046	→ .08	→ .288	→ .07	→ .024	→ .08	→ .065	→ .09	103
14 194	→ .216	→ .02	→ .050	→ .08	→ .300	→ .07	→ .027	→ .08	→ .056	→ .09	104
15 195	→ .215	→ .02	→ .055	→ .08	→ .311	→ .07	→ .029	→ .08	→ .047	→ .09	105
16 196	→ .213	→ .02	→ .059	→ .08	→ .322	→ .06	→ .032	→ .08	→ .039	→ .09	106
17 197	→ .211	→ .02	→ .063	→ .08	→ .332	→ .06	→ .035	→ .08	→ .030	→ .09	107
18 198	→ .209	→ .03	→ .066	→ .08	→ .341	→ .06	→ .037	→ .08	→ .021	→ .09	108
19 199	→ .206	→ .03	→ .070	→ .08	→ .351	→ .06	→ .039	→ .08	→ .012	→ .09	109
20 200	→ .204	→ .03	→ .074	→ .07	→ .360	→ .05	→ .042	→ .07	→ .004	→ .09	110
21 201	→ .200	→ .03	→ .078	→ .07	→ .369	→ .05	→ .044	→ .07	+ .005	→ .09	111
22 202	→ .197	→ .04	→ .081	→ .07	→ .377	→ .05	→ .046	→ .07	→ .014	→ .09	112
23 203	→ .194	→ .04	→ .084	→ .07	→ .384	→ .05	→ .048	→ .07	→ .023	→ .09	113
24 204	→ .189	→ .04	→ .088	→ .07	→ .391	→ .04	→ .051	→ .07	→ .033	→ .08	114
25 205	→ .186	→ .05	→ .091	→ .06	→ .398	→ .04	→ .053	→ .06	→ .042	→ .08	115
26 206	→ .181	→ .05	→ .094	→ .06	→ .404	→ .04	→ .055	→ .06	→ .051	→ .08	116
27 207	→ .177	→ .05	→ .097	→ .06	→ .410	→ .04	→ .057	→ .06	→ .059	→ .08	117
28 208	→ .172	→ .05	→ .100	→ .06	→ .416	→ .03	→ .059	→ .06	→ .068	→ .08	118
29 209	→ .167	→ .05	→ .103	→ .05	→ .420	→ .03	→ .061	→ .06	→ .076	→ .08	119
30 210	→ .161	→ .06	→ .106	→ .05	→ .424	→ .03	→ .063	→ .05	→ .085	→ .08	120
31 211	→ .156	→ .06	→ .108	→ .05	→ .428	→ .02	→ .064	→ .05	→ .093	→ .08	121
32 212	→ .151	→ .06	→ .110	→ .05	→ .431	→ .02	→ .065	→ .05	→ .101	→ .08	122
33 213	→ .145	→ .06	→ .113	→ .04	→ .438	→ .02	→ .067	→ .04	→ .110	→ .07	123
34 214	→ .139	→ .06	→ .115	→ .04	→ .436	→ .01	→ .068	→ .04	→ .118	→ .07	124
35 215	→ .133	→ .07	→ .117	→ .04	→ .437	→ .01	→ .069	→ .04	→ .126	→ .07	125
36 216	→ .127	→ .07	→ .119	→ .04	→ .438	→ .01	→ .071	→ .04	→ .133	→ .07	126
37 217	→ .120	→ .07	→ .120	→ .03	→ .438	→ .01	→ .072	→ .03	→ .141	→ .07	127
38 218	→ .114	→ .07	→ .121	→ .03	→ .439	→ .00	→ .073	→ .03	→ .148	→ .07	128
39 219	→ .108	→ .07	→ .123	→ .03	→ .439	→ .00	→ .074	→ .03	→ .156	→ .06	129
40 220	→ .101	→ .07	→ .124	→ .02	→ .438	→ .00	→ .075	→ .02	→ .163	→ .06	130
41 221	→ .093	→ .07	→ .125	→ .02	→ .436	+ .01	→ .076	→ .02	→ .170	→ .06	131
42 222	→ .087	→ .08	→ .126	→ .02	→ .434	→ .01	→ .077	→ .02	→ .176	→ .06	132
43 223	→ .080	→ .08	→ .127	→ .01	→ .431	→ .01	→ .077	→ .02	→ .183	→ .05	133
44 224	→ .072	→ .08	→ .128	→ .01	→ .428	→ .02	→ .078	→ .01	→ .189	→ .05	134
45 225	→ .063	→ .08	→ .128	+ .01	→ .424	+ .02	+ .078	→ .01	+ .193	→ .05	135

NOTE.—When the *Argument* is on the *right-hand* side of the Table, the signs of the corrections must be changed.

TABLE,

giving the *Correction* to be applied to the Apparent Places of Five Polar Stars,
for the terms of Nutation involving 2ζ .

α URS. MIN.		51 CEPHEI.		σ OCTANTIS.		δ URS. MIN.		λ URS. MIN.		<i>Arg.</i>	
R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	R. A.	Dec.	ζ	
s	"	s	"	s	"	s	"	s	"	c	o
—065	—08	—128	+01	—424	+02	+078	—01	+195	—05	135	315
058	08	128	00	420	02	078	01	201	05	136	316
050	08	129	00	415	03	079	00	207	04	137	317
043	08	129	+00	410	03	079	00	212	04	138	318
035	08	129	—01	404	03	079	—00	216	04	139	319
027	08	128	01	398	03	079	+01	221	04	140	320
020	08	127	01	391	04	079	01	226	03	141	321
012	08	127	02	383	04	079	01	230	03	142	322
—004	08	126	02	376	04	078	02	233	03	143	323
+003	08	125	02	368	05	078	02	237	02	144	324
011	08	124	02	359	05	077	02	240	02	145	325
019	08	123	03	350	05	076	03	243	02	146	326
027	08	121	03	341	05	075	03	246	02	147	327
035	08	120	03	331	06	075	03	249	01	148	328
042	08	118	04	320	06	074	03	251	01	149	329
049	08	116	04	310	06	073	04	253	01	150	330
057	08	115	04	300	06	072	04	254	00	151	331
064	08	112	04	288	07	071	04	256	00	152	332
071	08	110	05	276	07	069	05	257	—00	153	333
079	08	108	05	264	07	068	05	257	+01	154	334
086	08	105	05	252	07	067	05	257	01	155	335
093	07	102	06	239	07	065	05	257	01	156	336
100	07	100	06	226	07	064	06	257	02	157	337
107	07	097	06	213	08	062	06	256	02	158	338
114	07	094	06	199	08	060	06	255	02	159	339
120	07	090	06	186	08	058	06	254	02	160	340
126	07	088	07	172	08	057	06	252	03	161	341
133	07	084	07	157	08	055	07	251	03	162	342
139	06	081	07	142	08	053	07	248	03	163	343
145	06	077	07	128	08	051	07	245	04	164	344
151	06	074	07	112	09	049	07	243	04	165	345
156	06	070	08	098	09	047	08	240	04	166	346
162	06	066	08	084	09	044	08	236	04	167	347
167	05	062	08	069	09	042	08	232	05	168	348
172	05	058	08	053	09	039	08	229	05	169	349
176	05	054	08	038	09	037	08	225	05	170	350
181	05	050	08	023	09	034	08	220	05	171	351
185	04	045	08	—007	09	032	08	215	06	172	352
189	04	042	09	+008	09	030	08	210	06	173	353
192	04	038	09	024	09	027	09	205	06	174	354
197	04	033	09	038	09	025	09	199	06	175	355
200	03	029	09	054	09	022	09	193	06	176	356
203	03	024	09	069	09	019	09	187	07	177	357
205	03	020	09	084	09	016	09	182	07	178	358
209	03	015	09	099	09	014	09	175	07	179	359
+211	—02	—011	—09	+114	+09	+011	+09	+168	+07	180	360

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1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☉'s R. A. in 1 hour of Long.	Declina- tion.	Sid. Time of ☉'s Sen. pass. mer.
Jan. 1	☿ Virginis - - -	3.4	^h 12 ^m 11 ^s 23.98	- -	N. 0 15	- -
	Moon II. <i>l. c.</i> - -	- -	12 3 23.69	136.08	5 28	67.39
	Moon II. <i>u. c.</i> (21.9)	- -	12 30 24.40	134.25	N. 2 35	66.92
	γ ¹ Virginis - - -	4	12 33 14.21	- -	S. 0 32	- -
	θ Virginis - - -	4.5	13 1 20.73	- -	4 39	- -
2	γ ¹ Virginis - - -	4	12 33 14.25	- -	S. 0 32	- -
	θ Virginis - - -	4.5	13 1 20.76	- -	4 39	- -
	Moon II. <i>l. c.</i> - -	- -	12 57 7.77	133.11	0 18	66.63
	Moon II. <i>u. c.</i> (23.0)	- -	13 23 41.78	132.67	3 11	66.51
	κ Virginis - - -	4	14 4 1.65	- -	9 30	- -
3	2 Libræ - - -	6	14 14 28.11	- -	S. 10 57	- -
	κ Virginis - - -	4	14 4 1.68	- -	S. 9 30	- -
	2 Libræ - - -	6	14 14 28.15	- -	10 57	- -
	Moon II. <i>l. c.</i> - -	- -	13 50 14.30	132.86	6 0	66.55
	Moon II. <i>u. c.</i> (24.0)	- -	14 16 52.66	133.63	8 42	66.73
4	α ² Libræ - - -	3	14 41 40.85	- -	15 21	- -
	ξ ² Libræ - - -	5	14 47 44.72	- -	S. 10 44	- -
	α ² Libræ - - -	3	14 41 40.88	- -	S. 15 21	- -
	ξ ² Libræ - - -	5	14 47 44.75	- -	10 44	- -
	Moon II. <i>l. c.</i> - -	- -	14 43 43.38	134.90	11 17	67.03
5	Moon II. <i>u. c.</i> (25.0)	- -	15 10 51.78	136.56	13 42	67.42
	☿ Libræ - - -	4.5	15 34 42.93	- -	S. 15 8	- -
	☿ Libræ - - -	4.5	15 34 42.96	- -	S. 15 8	- -
	Moon II. <i>l. c.</i> - -	- -	15 38 21.72	138.47	15 54	67.87
	Moon II. <i>u. c.</i> (26.1)	- -	16 6 15.26	140.45	17 53	68.35
6	α Scorpii - - -	1	16 19 12.10	- -	S. 26 3	- -
	α Scorpii - - -	1	16 19 12.13	- -	S. 26 3	- -
	Moon II. <i>l. c.</i> - -	- -	16 34 32.14	142.33	19 36	68.79
	Moon II. <i>u. c.</i> (27.1)	- -	17 3 10.05	143.92	S. 21 1	69.15
	Moon II. <i>l. c.</i> - -	- -	17 32 4.18	145.01	S. 22 7	69.40
7	Moon II. <i>u. c.</i> (28.2)	- -	18 1 7.74	145.46	22 54	69.50
	Moon II. <i>l. c.</i> - -	- -	18 30 12.35	145.17	S. 23 21	69.41
	Moon II. <i>u. c.</i> (29.2)	- -	18 59 8.65	144.08	23 28	69.14
	Moon I. <i>l. c.</i> - -	- -	19 25 30.04	142.34	S. 23 15	68.68
	Moon I. <i>u. c.</i> (0.6)	- -	19 53 43.89	139.87	S. 22 42	68.07
8	Moon I. <i>l. c.</i> - -	- -	20 21 24.81	136.89	21 52	67.32
	Moon I. <i>u. c.</i> (1.6)	- -	20 48 27.69	133.54	S. 20 46	66.49
	Moon I. <i>l. c.</i> - -	- -	21 14 49.13	130.03	19 25	65.60
	Moon I. <i>u. c.</i> (2.6)	- -	21 40 28.53	126.54	S. 17 41	64.72
	Moon I. <i>u. c.</i> (2.6)	- -	21 40 28.53	126.54	S. 17 41	64.72

MOON-CULMINATING STARS. 417

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☉'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☉'s Sem. pass. mer.
Jan. 12	Moon I. <i>l. c.</i>	- -	^h 22 ^m 5 ^s 26.74	^s 123.20	S. 16° 5'	63.87
13	♈ Aquarii - - -	4.5	21 57 25.88	- - -	S. 14 40	- -
-	♈ Aquarii - - -	5	22 21 49.52	- - -	11 31	- -
-	Moon I. <i>u. c.</i> (3.7)	- -	22 29 46.37	120.13	14 10	63.09
-	Moon I. <i>l. c.</i> - - -	- -	22 53 31.45	117.45	12 6	62.40
-	♏ Aquarii - - -	3	22 45 48.29	- - -	16 42	- -
-	♏ Aquarii - - -	5	23 10 17.77	- - -	S. 10 31	- -
14	♏ Aquarii - - -	3	22 45 48.29	- - -	S. 16 42	- -
-	♏ Aquarii - - -	5	23 10 17.76	- - -	10 31	- -
-	Moon I. <i>u. c.</i> (4.7)	- -	23 16 46.95	115.21	9 56	61.82
-	Moon I. <i>l. c.</i> - - -	- -	23 39 38.61	113.49	7 40	61.38
-	♐ Piscium - - -	4.5	23 53 25.43	- - -	S. 6 56	- -
15	♐ Piscium - - -	4.5	23 53 25.42	- - -	S. 6 56	- -
-	Moon I. <i>u. c.</i> (5.7)	- -	0 2 12.85	112.31	5 20	61.09
-	Moon I. <i>l. c.</i> - - -	- -	0 24 36.42	111.72	2 57	60.96
-	♑ Ceti - - - -	5	0 44 30.64	- - -	S. 2 3	- -
16	♑ Ceti - - - -	5	0 44 30.62	- - -	S. 2 3	- -
-	Moon I. <i>u. c.</i> (6.7)	- -	0 46 56.55	111.74	S. 0 32	60.99
-	Moon I. <i>l. c.</i> - - -	- -	1 9 20.69	112.39	N. 1 54	61.19
-	♒ Piscium - - *	5	1 21 28.57	- - -	5 17	- -
17	♒ Piscium - - *	5	1 21 28.56	- - -	N. 5 17	- -
-	Moon I. <i>u. c.</i> (7.8)	- -	1 31 56.39	113.67	4 20	61.56
-	Moon I. <i>l. c.</i> - - -	- -	1 54 51.51	115.62	6 44	62.12
-	♓ Ceti - - - *	5	2 4 12.07	- - -	N. 8 4	- -
18	♓ Ceti - - - *	5	2 4 12.05	- - -	N. 8 4	- -
-	Moon I. <i>u. c.</i> (8.8)	- -	2 18 14.00	118.24	9 6	62.84
-	Moon I. <i>l. c.</i> - - -	- -	2 42 11.73	121.49	11 23	63.71
-	♓ Ceti - - - *	4	2 35 58.07	- - -	9 25	- -
-	♓ Ceti - - - *	5.6	2 50 48.66	- - -	N. 8 14	- -
19	♓ Ceti - - - *	4	2 35 58.05	- - -	N. 9 25	- -
-	♓ Ceti - - - *	5.6	2 50 48.65	- - -	8 14	- -
-	Moon I. <i>u. c.</i> (9.8)	- -	3 6 52.35	125.38	13 35	64.75
-	Moon I. <i>l. c.</i> - - -	- -	3 32 23.14	129.84	15 40	65.90
-	♉ Tauri - - - *	5.6	3 21 42.88	- - -	N. 12 22	- -
20	♉ Tauri - - - *	5.6	3 21 42.87	- - -	N. 12 22	- -
-	Moon I. <i>u. c.</i> (10.9)	- -	3 58 50.32	134.76	17 34	67.16
-	Moon I. <i>l. c.</i> - - -	- -	4 26 18.66	140.00	19 18	68.46
-	♉ Tauri - - - -	4	4 18 55.79	- - -	18 48	- -
-	♉ Tauri - - - -	1	4 26 24.13	- - -	N. 16 10	- -
21	♉ Tauri - - - -	4	4 18 55.79	- - -	N. 18 48	- -
-	♉ Tauri - - - -	1	4 26 24.12	- - -	N. 16 10	- -

418 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Jan. 21	Moon I. u.c.	(11.9)	^h 4 ^m 54 ^s 50.81	^s 145.36	[°] N.20 ['] 46	^s 69.76
	Moon I. l.c.	- -	5 24 26.60	150.56	21 58	71.00
	β Tauri - - -	2	5 15 48.42	- -	28 28	- -
	ζ Tauri - - -	3.4	5 27 43.85	- -	N.21 2	- -
22	β Tauri - - -	2	5 15 48.41	- -	N.28 28	- -
	ζ Tauri - - -	3.4	5 27 43.85	- -	21 2	- -
	Moon I. u.c.	(12.9)	5 55 2.24	155.27	22 51	72.09
	Moon I. l.c.	- -	6 26 29.95	159.18	23 21	72.99
	μ Geminorum -	3	6 12 55.40	- -	22 35	- -
	ε Geminorum -	3	6 33 43.40	- -	N.25 17	- -
23	μ Geminorum -	3	6 12 55.40	- -	N.22 35	- -
	ε Geminorum -	3	6 33 43.40	- -	25 17	- -
	Moon I. u.c.	(14.0)	6 58 38.26	161.99	23 28	73.62
	Moon I. l.c.	- -	7 31 12.60	163.49	23 10	73.93
	δ Geminorum -	3.4	7 10 12.72	- -	22 17	- -
	β Geminorum -	2	7 35 9.50	- -	N.28 25	- -
24	δ Geminorum -	3.4	7 10 12.72	- -	N.22 17	- -
	β Geminorum -	2	7 35 9.51	- -	28 25	- -
	Moon I. u.c.	(15.0)	8 3 56.60	163.60	22 26	73.93
	θ Cancri - - -	5.6	8 22 7.77	- -	18 39	- -
	δ Cancri - - -	4.5	8 35 15.12	- -	N.18 46	- -
25	θ Cancri - - -	5.6	8 22 7.78	- -	N.18 39	- -
	δ Cancri - - -	4.5	8 35 15.13	- -	18 46	- -
	Moon II. l.c.	- -	8 39 1.11	162.32	21 16	73.62
	Moon II. u.c.	(16.1)	9 11 15.90	159.98	19 43	73.07
	ν Leonis - - - *	5.6	9 49 17.66	- -	13 14	- -
	α Leonis - - - *	1	9 59 31.99	- -	N.12 47	- -
26	ν Leonis - - - *	5.6	9 49 17.68	- -	N.13 14	- -
	α Leonis - - - *	1	9 59 32.00	- -	12 47	- -
	Moon II. l.c.	- -	9 42 57.41	156.84	17 48	72.33
	Moon II. u.c.	(17.1)	10 13 58.12	153.24	15 34	71.48
	53 Leonis - - - *	6	10 40 31.88	- -	11 25	- -
	χ Leonis - - - *	4.5	10 56 27.37	- -	N. 8 14	- -
27	53 Leonis - - - *	6	10 40 31.90	- -	N.11 25	- -
	χ Leonis - - - *	4.5	10 56 27.40	- -	8 14	- -
	Moon II. l.c.	- -	10 44 14.48	149.50	13 5	70.58
	Moon II. u.c.	(18.2)	11 13 46.69	145.91	10 23	69.73
	ν Virginis - - *	4.5	11 37 19.71	- -	7 28	- -
	β Virginis - - -	3.4	11 42 3.21	- -	N. 2 42	- -
28	ν Virginis - - *	4.5	11 37 19.74	- -	N. 7 28	- -
	β Virginis - - -	3.4	11 42 3.23	- -	2 42	- -
	Moon II. l.c.	- -	11 42 37.67	142.67	7 32	68.95
	Moon II. u.c.	(19.2)	12 10 52.66	139.93	N. 4 35	68.29

MOON-CULMINATING STARS. 419

834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
			^h ^m ^s	^s	[°] [']	^s
Jan. 28	γ ¹ Virginis - - -	4	12 33 15.05	- -	S. 0 32	- -
29	γ ¹ Virginis - - -	4	12 33 15.08	- -	S. 0 32	- -
	Moon II. <i>l. c.</i> - -	- -	12 38 38.28	137.78	N. 1 36	67.77
	Moon II. <i>u. c.</i> (20.2)	- -	13 6 1.97	136.27	S. 1 23	67.41
	α Virginis - - -	1	13 16 27.12	- -	S. 10 18	- -
	ξ Virginis - - -	4	13 26 14.22	- -	N. 0 15	- -
30	α Virginis - - -	1	13 16 27.15	- -	S. 10 18	- -
	ξ Virginis - - -	4	13 26 14.25	- -	N. 0 15	- -
	Moon II. <i>l. c.</i> - -	- -	13 33 11.40	135.40	S. 4 18	67.20
	Moon II. <i>u. c.</i> (21.3)	- -	14 0 14.17	135.15	7 8	67.15
	α ² Libræ - - - -	3	14 41 41.74	- -	S. 15 21	- -
31	α ² Libræ - - - -	3	14 41 41.77	- -	S. 15 21	- -
	Moon II. <i>l. c.</i> - -	- -	14 27 17.22	135.44	9 50	67.24
	Moon II. <i>u. c.</i> (22.3)	- -	14 54 26.65	136.20	12 22	67.44
	γ Libræ - - - -	4.5	15 26 14.05	- -	S. 14 14	- -
Feb. 1	γ Libræ - - - -	4.5	15 26 14.09	- -	S. 14 14	- -
	Moon II. <i>l. c.</i> - -	- -	15 21 47.49	137.32	14 42	67.72
	Moon II. <i>u. c.</i> (23.3)	- -	15 49 23.15	138.66	16 49	68.05
	ν Scorpïi - - -	4	16 2 20.32	- -	19 1	- -
	α Scorpïi - - -	1	16 19 12.96	- -	S. 26 3	- -
2	ν Scorpïi - - -	4	16 2 20.35	- -	S. 19 1	- -
	α Scorpïi - - -	1	16 19 13.00	- -	26 3	- -
	Moon II. <i>l. c.</i> - -	- -	16 17 15.49	140.07	18 41	68.40
	Moon II. <i>u. c.</i> (24.4)	- -	16 45 24.35	141.38	20 15	68.71
	ρ Ophiuchi - - -	4.5	17 11 1.88	- -	S. 20 56	- -
3	ρ Ophiuchi - - -	4.5	17 11 1.91	- -	S. 20 56	- -
	Moon II. <i>l. c.</i> - -	- -	17 13 47.55	142.43	21 32	68.95
	Moon II. <i>u. c.</i> (25.4)	- -	17 42 21.09	143.07	22 30	69.09
	μ ¹ Sagittarii - -	3.4	18 3 48.53	- -	S. 21 6	- -
4	μ ¹ Sagittarii - -	3.4	18 3 48.55	- -	S. 21 6	- -
	Moon II. <i>l. c.</i> - -	- -	18 10 59.15	143.17	23 9	69.08
	Moon II. <i>u. c.</i> (26.4)	- -	18 39 34.73	142.64	S. 23 28	68.93
5	Moon II. <i>l. c.</i> - -	- -	19 8 0.03	141.47	S. 23 28	68.61
	Moon II. <i>u. c.</i> (27.5)	- -	19 36 7.43	139.66	23 8	68.13
6	Moon II. <i>l. c.</i> - -	- -	20 3 49.80	137.32	S. 22 30	67.51
	Moon II. <i>u. c.</i> (28.5)	- -	20 31 1.33	134.54	21 35	66.78
7	Moon II. <i>l. c.</i> - -	- -	20 57 37.73	131.49	S. 20 25	65.99
8	Moon II. <i>u. c.</i> (29.5)	- -	21 23 36.53	128.30	S. 19 0	65.15
	Moon I. <i>l. c.</i> - -	- -	21 46 48.28	125.25	S. 17 22	64.31

420 MOON-CULMINATING STARS.

1834.	Names.		Mag- nitude.	At Greenwich Transit.			
				Apparent Right Ascension in Time.	Var. of R. A. in 1 hour of Long.	Declination.	Sid. Tu of R. A. past 20
Feb. 9	Moon I.	u. c.	(0 '8)	^h ^m ^s 22 11 32 '78	122 '20	[°] ['] ^{''} S. 15 33	63 3
	Moon I.	l. c.	- -	22 35 41 '91	119 '38	13 35	62 7
10	Moon I.	u. c.	(1 '9)	22 59 19 '12	116 '89	S. 11 28	62 1
	Moon I.	l. c.	- -	23 22 28 '78	114 '80	9 16	61 3
11	ψ ³ Aquarii	- - -	5	23 10 17 '64	- -	S. 10 31	- -
	Moon I.	u. c.	(2 '9)	23 45 16 '01	113 '16	6 58	61 1
	Moon I.	l. c.	- -	0 7 46 '47	112 '01	4 36	60 8
	r Piscium	- - -	4.5	23 53 25 '22	- -	S. 6 56	- -
12	r Piscium	- - -	4.5	23 53 25 '21	- -	S. 6 56	- -
	Moon I.	u. c.	(3 '9)	0 30 6 '31	111 '39	S. 2 12	60 7
	Moon I.	l. c.	- -	0 52 21 '98	111 '32	N. 0 14	60 7
	e Piscium	- - *	5	0 59 48 '25	- -	N. 4 46	- -
13	e Piscium	- - *	5	0 59 48 '24	- -	N. 4 46	- -
	Moon I.	u. c.	(4 '9)	1 14 40 '22	111 '82	2 39	60 9
	Moon I.	l. c.	- -	1 37 8 '02	112 '91	5 4	61 2
	ν Piscium	- - *	5	1 32 46 '82	- -	4 39	- -
	o Piscium	- - *	5	1 36 36 '87	- -	N. 8 19	- -
14	ν Piscium	- - *	5	1 32 46 '81	- -	N. 4 39	- -
	o Piscium	- - *	5	1 36 36 '86	- -	8 19	- -
	Moon I.	u. c.	(6 '0)	1 59 52 '53	114 '61	7 26	61 7
	Moon I.	l. c.	- -	2 23 1 '00	116 '91	9 45	62 4
	ξ ² Ceti	- - - *	5	2 19 19 '54	- -	7 43	- -
	ν Ceti	- - - *	4.5	2 27 9 '30	- -	N. 4 52	- -
15	ξ ² Ceti	- - - *	5	2 19 19 '53	- -	N. 7 43	- -
	ν Ceti	- - - *	4.5	2 27 9 '29	- -	4 52	- -
	Moon I.	u. c.	(7 '0)	2 46 40 '74	119 '81	11 59	63 2
	Moon I.	l. c.	- -	3 10 58 '84	123 '30	14 7	64 2
	ξ Tauri	- - - *	4	3 18 10 '22	- -	N. 9 9	- -
16	ξ Tauri	- - - *	4	3 18 10 '20	- -	N. 9 9	- -
	Moon I.	u. c.	(8 '0)	3 36 2 '08	127 '33	16 7	65 3
	Moon I.	l. c.	- -	4 1 56 '52	131 '82	17 58	66 3
	λ Tauri	- - - *	4	3 51 28 '91	- -	12 1	- -
	γ Tauri	- - - -	3.4	4 10 20 '70	- -	N. 15 13	- -
17	λ Tauri	- - - *	4	3 51 28 '89	- -	N. 12 1	- -
	γ Tauri	- - - -	3.4	4 10 20 '68	- -	15 13	- -
	Moon I.	u. c.	(9 '1)	4 28 47 '09	136 '66	19 36	67 7
	Moon I.	l. c.	- -	4 56 37 '02	141 '68	21 1	69 3
	ι Tauri	- - - -	4.5	4 53 10 '61	- -	21 21	- -
	β Tauri	- - - -	2	5 15 48 '09	- -	N. 28 28	- -
18	ι Tauri	- - - -	4.5	4 53 10 '59	- -	N. 21 21	- -
	β Tauri	- - - -	2	5 15 48 '08	- -	N. 28 28	- -

MOON-CULMINATING STARS. 421

834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Feb. 18	Moon I. u.c.	(10.1)	^h 5 ^m 25 ^s 27.30	146.68	N. 22 10	70.26
	Moon I. l.c.	-	5 55 16.04	151.37	23 0	71.38
	H Geminorum -	5	5 54 1.93	-	23 16	-
	γ Geminorum -	4.5	6 4 51.55	-	N. 22 33	-
19	H Geminorum -	5	5 54 1.91	-	N. 23 16	-
	η Geminorum -	4.5	6 4 51.54	-	22 33	-
	Moon I. u.c.	(11.1)	6 25 58.00	155.50	23 29	72.35
	Moon I. l.c.	-	6 57 24.74	158.79	23 35	73.09
	ζ Geminorum -	4	6 54 15.83	-	20 48	-
	δ Geminorum -	3.4	7 10 12.63	-	N. 22 17	-
20	ζ Geminorum -	4	6 54 15.82	-	N. 20 48	-
	δ Geminorum -	3.4	7 10 12.62	-	22 17	-
	Moon I. u.c.	(12.2)	7 29 24.64	161.00	23 17	73.57
	Moon I. l.c.	-	8 1 44.09	162.03	22 34	73.76
	φ Geminorum -	5	7 43 20.25	-	27 11	-
	μ ¹ Cancri - - -	6	7 56 28.23	-	N. 23 6	-
21	φ Geminorum -	5	7 43 20.24	-	N. 27 11	-
	μ ¹ Cancri - - -	6	7 56 28.23	-	23 6	-
	Moon I. u.c.	(13.2)	8 34 8.71	161.87	21 25	73.67
	Moon I. l.c.	-	9 6 24.77	160.64	19 52	73.33
	ξ Cancri - - -	5.6	8 59 48.89	-	22 43	-
	λ Leonis - - -	4.5	9 22 15.06	-	N. 23 42	-
22	ξ Cancri - - -	5.6	8 59 48.89	-	N. 22 43	-
	λ Leonis - - -	4.5	9 22 15.06	-	23 42	-
	Moon I. u.c.	(14.3)	9 38 20.68	158.56	17 57	72.79
	Moon I. l.c.	-	10 9 47.82	155.90	15 41	72.12
	α Leonis - - - *	1	9 59 32.32	-	12 47	-
	ρ Leonis - - - *	4	10 24 4.66	-	N. 10 10	-
23	α Leonis - - - *	1	9 59 32.32	-	N. 12 47	-
	ρ Leonis - - - *	4	10 24 4.67	-	10 10	-
	Moon II. u.c.	(15.3)	10 43 3.81	152.83	13 7	71.39
	χ Leonis - - - *	4.5	10 56 27.83	-	8 14	-
	ι Leonis - - - *	4	11 15 16.64	-	N. 11 27	-
24	χ Leonis - - - *	4.5	10 56 27.84	-	N. 8 14	-
	ι Leonis - - - *	4	11 15 16.66	-	11 27	-
	Moon II. l.c.	-	11 13 19.90	149.87	10 20	70.66
	Moon II. u.c.	(16.3)	11 43 1.51	147.12	7 23	69.99
	c Virginis - - *	5.6	12 11 55.11	-	N. 4 14	-
25	c Virginis - - *	5.6	12 11 55.12	-	N. 4 14	-
	Moon II. l.c.	-	12 12 12.20	144.74	4 18	69.42
	Moon II. u.c.	(17.4)	12 40 57.13	142.84	N. 1 11	68.96
	θ Virginis - - -	4.5	13 1 22.30	-	S. 4 39	-
	α Virginis - - -	1	13 16 27.83	-	S. 10 18	-

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of Transit
			Apparent Right Ascension in Time.	Var. of G's R. A. in 1 hour of Long.	Declination.	G's Sec pass. mer.	
Feb. 26	θ Virginis - - -	4.5	h m s 13 1 22.32	- -	S. 4 39	-	-
	α Virginis - - -	1	13 16 27.86	- -	10 18	-	-
	Moon II. <i>l. c.</i> - -	-	13 9 22.47	141.47	1 55	68.6	-
	Moon II. <i>u. c.</i> (18.4)	-	13 37 34.63	140.65	4 58	68.4	-
	κ Virginis - - -	4	14 4 3.34	- -	9 30	-	-
	λ Virginis - - -	4	14 10 8.85	- -	S. 12 36	-	-
	κ Virginis - - -	4	14 4 3.36	- -	S. 9 30	-	-
	λ Virginis - - -	4	14 10 8.88	- -	12 36	-	-
	Moon II. <i>l. c.</i> - -	-	14 5 40.02	140.33	7 54	68.4	-
	Moon II. <i>u. c.</i> (19.5)	-	14 33 44.40	140.47	10 40	68.4	-
Feb. 27	α^2 Libræ - - -	3	14 41 42.60	- -	15 21	-	-
	γ Libræ - - -	4.5	15 26 14.90	- -	S. 14 14	-	-
	α^2 Libræ - - -	3	14 41 42.62	- -	S. 15 21	-	-
	γ Libræ - - -	4.5	15 26 14.93	- -	14 14	-	-
	Moon II. <i>l. c.</i> - -	-	15 1 52.70	140.96	13 15	68.6	-
	Moon II. <i>u. c.</i> (20.5)	-	15 30 8.43	141.69	15 36	68.8	-
	β^1 Scorpii - - -	2	15 55 47.49	- -	19 21	-	-
	α Scorpii - - -	1	16 19 13.88	- -	S. 26 3	-	-
	β^1 Scorpii - - -	2	15 55 47.52	- -	S. 19 21	-	-
	α Scorpii - - -	1	16 19 13.91	- -	26 3	-	-
Mar. 1	Moon II. <i>l. c.</i> - -	-	15 58 33.71	142.53	17 41	69.1	-
	Moon II. <i>u. c.</i> (21.5)	-	16 27 8.93	143.32	19 29	69.2	-
	η Ophiuchi - - -	2.3	17 0 51.31	- -	15 31	-	-
	ρ Ophiuchi - - -	4.5	17 11 2.74	- -	S. 20 56	-	-
	η Ophiuchi - - -	2.3	17 0 51.34	- -	S. 15 31	-	-
	ρ Ophiuchi - - -	4.5	17 11 2.77	- -	20 56	-	-
	Moon II. <i>l. c.</i> - -	-	16 55 52.57	143.91	20 59	69.4	-
	Moon II. <i>u. c.</i> (22.6)	-	17 24 41.42	144.16	22 9	69.3	-
	μ^1 Sagittarii - - -	3.4	18 3 49.33	- -	S. 21 6	-	-
	μ^1 Sagittarii - - -	3.4	18 3 49.36	- -	S. 21 6	-	-
Mar. 2	Moon II. <i>l. c.</i> - -	-	17 53 30.74	143.97	22 59	69.4	-
	Moon II. <i>u. c.</i> (23.6)	-	18 22 14.63	143.25	23 30	69.2	-
	σ Sagittarii - - -	3	18 44 56.85	- -	S. 26 30	-	-
	σ Sagittarii - - -	3	18 44 56.88	- -	S. 26 30	-	-
	Moon II. <i>l. c.</i> - -	-	18 50 46.55	141.97	23 40	68.9	-
	Moon II. <i>u. c.</i> (24.6)	-	19 18 59.84	140.15	23 32	68.4	-
	c Sagittarii - - -	4.5	19 52 24.91	- -	S. 28 10	-	-
	c Sagittarii - - -	4.5	19 52 24.93	- -	S. 28 10	-	-
	Moon II. <i>l. c.</i> - -	-	19 46 48.33	137.86	23 4	67.8	-
	Moon II. <i>u. c.</i> (25.7)	-	20 14 6.88	135.18	S. 22 19	67.1	-
Mar. 6	Moon II. <i>l. c.</i> - -	-	20 40 51.58	132.24	S. 21 17	66.3	-
	Moon II. <i>u. c.</i> (26.7)	-	21 7 0.01	129.16	S. 20 0	65.3	-

MOON-CULMINATING STARS. 423

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Mar. 7	Moon II. <i>l. c.</i>	- -	^h ^m ^s 21 32 31.36	126.07	[°] ['] S. 18 30	^s 64.69
	Moon II. <i>u. c.</i>	(27.7)	21 57 26.18	123.09	16 48	63.87
8	Moon II. <i>l. c.</i>	- -	22 21 46.31	120.31	S. 14 55	63.11
	Moon II. <i>u. c.</i>	(28.8)	22 45 34.66	117.80	12 53	62.41
9	Moon II. <i>l. c.</i>	- -	23 8 55.00	115.65	S. 10 43	61.81
10	Moon I. <i>u. c.</i>	(0.0)	23 29 49.20	113.97	S. 8 28	61.32
	Moon I. <i>l. c.</i>	- -	23 52 28.21	112.62	6 7	60.95
11	Moon I. <i>u. c.</i>	(1.1)	0 14 53.85	111.74	S. 3 43	60.72
	Moon I. <i>l. c.</i>	- -	0 37 11.78	111.34	S. 1 17	60.63
12	Moon I. <i>u. c.</i>	(2.1)	0 59 27.98	111.44	N. 1 10	60.69
	Moon I. <i>l. c.</i>	- -	1 21 48.47	112.06	3 37	60.89
13	Moon I. <i>u. c.</i>	(3.1)	1 44 19.55	113.21	N. 6 2	61.25
	Moon I. <i>l. c.</i>	- -	2 7 7.58	114.88	8 24	61.75
14	ξ ² Ceti - - - *	5	2 19 19.20	- -	N. 7 43	- -
	Moon I. <i>u. c.</i>	(4.2)	2 30 18.82	117.08	10 42	62.40
	Moon I. <i>l. c.</i>	- -	2 53 59.57	119.79	12 54	63.17
	λ Ceti - - - *	5.6	2 50 47.88	- -	N. 8 14	- -
15	λ Ceti - - - *	5.6	2 50 47.87	- -	N. 8 14	- -
	Moon I. <i>u. c.</i>	(5.2)	3 18 15.74	122.99	14 59	64.08
	Moon I. <i>l. c.</i>	- -	3 43 12.92	126.61	16 55	65.08
	λ Tauri - - - *	4	3 51 28.46	- -	N. 12 1	- -
16	λ Tauri - - - *	4	3 51 28.45	- -	N. 12 1	- -
	Moon I. <i>u. c.</i>	(6.2)	4 8 55.87	130.60	18 41	66.16
	Moon I. <i>l. c.</i>	- -	4 35 28.29	134.84	20 14	67.29
	α Tauri - - - -	1	4 26 23.29	- -	16 10	- -
	ε Tauri - - - -	4.5	4 53 10.12	- -	N. 21 21	- -
17	α Tauri - - - -	1	4 26 23.28	- -	N. 16 10	- -
	ε Tauri - - - -	4.5	4 53 10.10	- -	21 21	- -
	Moon I. <i>u. c.</i>	(7.3)	5 2 52.38	139.19	21 33	68.43
	Moon I. <i>l. c.</i>	- -	5 31 8.42	143.46	22 36	69.52
	ζ Tauri - - - -	3.4	5 27 43.07	- -	21 2	- -
	C Tauri - - - -	4.5	5 42 53.30	- -	N. 27 34	- -
18	ζ Tauri - - - -	3.4	5 27 43.05	- -	N. 21 2	- -
	C Tauri - - - -	4.5	5 42 53.28	- -	27 34	- -
	Moon I. <i>u. c.</i>	(8.3)	6 0 14.34	147.46	23 21	70.53
	Moon I. <i>l. c.</i>	- -	6 30 5.61	150.98	23 45	71.40
	μ Geminorum -	3	6 12 54.72	- -	22 35	- -
	ε Geminorum -	3	6 33 42.77	- -	N. 25 17	- -

ECLIPSE MINATING STARS.

At Greenwich Transit.				
	Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Declination.	Sid. Time of C's Sem. pass. mer.
	^h ^m ^s	^s	[°] [']	
3	6 12 54.71	-	N. 22 35	-
3	6 33 42.75	-	25 17	-
(9.3)	7 0 35.26	153.83	23 48	72.08
-	7 31 34.12	153.83	23 28	72.54
2	7 35 9.10	-	N. 28 25	-
2	7 35 9.08	-	N. 28 25	-
v.c. (10.4)	8 2 51.53	156.92	22 44	72.78
l.c.	8 34 16.53	157.10	21 36	72.78
4.5	8 35 15.01	-	18 46	-
5.6	8 59 48.71	-	N. 22 43	-
4.5	8 35 14.99	-	N. 18 46	-
5.6	8 59 48.70	-	22 43	-
Moon I. v.c. (11.4)	9 5 38.62	156.46	20 4	72.58
Moon I. l.c.	9 36 48.87	155.16	18 10	72.23
5.6	9 49 17.91	-	13 14	-
1	9 59 32.29	-	N. 12 47	-
5.6	9 49 17.90	-	N. 13 14	-
1	9 59 32.28	-	12 47	-
Moon I. v.c. (12.5)	10 7 40.81	153.43	15 56	71.75
Moon I. l.c.	10 38 10.38	151.48	13 24	71.23
4	10 24 4.69	-	10 10	-
53	10 40 32.37	-	N. 11 25	-
4	10 24 4.69	-	N. 10 10	-
53	10 40 32.37	-	11 25	-
Moon I. v.c. (13.5)	11 8 16.27	149.52	10 37	70.71
Moon I. l.c.	11 37 59.56	147.74	7 38	70.25
4.5	11 37 20.47	-	7 28	-
3.4	11 42 3.99	-	N. 2 42	-
4.5	11 37 20.47	-	N. 7 28	-
3.4	11 42 3.99	-	2 42	-
Moon I. v.c. (14.5)	12 7 23.26	146.28	N. 4 31	69.86
4	12 33 16.04	-	S. 0 32	-
3.4	12 47 15.46	-	N. 4 18	-
4	12 33 16.05	-	S. 0 32	-
3.4	12 47 15.47	-	N. 4 18	-
Moon II. l.c.	12 38 51.00	145.19	N. 1 20	69.59
Moon II. v.c. (15.6)	13 7 49.34	144.62	S. 1 52	69.45
1	13 16 28.31	-	10 18	-
5.6	13 32 55.47	-	S. 7 52	-
1	13 16 28.32	-	S. 10 18	-
5.6	13 32 55.48	-	7 52	-
Moon II. l.c.	13 36 43.57	144.50	5 2	69.43
Moon II. v.c. (16.6)	14 5 39.04	144.81	S. 8 5	69.52

MOON-CULMINATING STARS. 425

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of ☾'s Sem. pass. mer.
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.		
Mar. 26	μ Virginis - - -	4.5	h m s 14 34 19.99	- -	S. 4 56	- -	- -
	α ² Libræ - - -	3	14 41 43.24	- -	15 21	- -	- -
27	μ Virginis - - -	4.5	14 34 20.00	- -	S. 4 56	- -	- -
	α ² Libræ - - -	3	14 41 43.27	- -	15 21	- -	- -
	Moon II. l. c.	- -	14 34 40.26	145.45	10 58	69.70	- -
	Moon II. u. c.	(17.6)	15 3 50.73	146.32	13 39	69.95	- -
	γ Libræ - - -	4.5	15 26 15.65	- -	14 14	- -	- -
	η Libræ - - -	4.5	15 34 45.41	- -	S. 15 8	- -	- -
28	γ Libræ - - -	4.5	15 26 15.67	- -	S. 14 14	- -	- -
	η Libræ - - -	4.5	15 34 45.43	- -	15 8	- -	- -
	Moon II. l. c.	- -	15 33 12.23	147.27	16 5	70.22	- -
	Moon II. u. c.	(18.7)	16 2 44.85	148.14	18 14	70.47	- -
	α Scorpii - - -	1	16 19 14.76	- -	S. 26 3	- -	- -
29	α Scorpii - - -	1	16 19 14.79	- -	S. 26 3	- -	- -
	Moon II. l. c.	- -	16 32 26.70	148.78	20 3	70.66	- -
	Moon II. u. c.	(19.7)	17 2 13.89	149.01	21 32	70.75	- -
	D Ophiuchi - - -	5	17 33 28.83	- -	21 36	- -	- -
	b Sagittarii - - -	5	17 49 38.77	- -	S. 23 48	- -	- -
30	D Ophiuchi - - -	5	17 33 28.86	- -	S. 21 36	- -	- -
	b Sagittarii - - -	5	17 49 38.80	- -	23 48	- -	- -
	Moon II. l. c.	- -	17 32 0.81	148.71	22 40	70.70	- -
	Moon II. u. c.	(20.8)	18 1 40.58	147.81	23 26	70.50	- -
	φ Sagittarii - - -	4.5	18 35 16.68	- -	27 9	- -	- -
	σ Sagittarii - - -	3	18 44 57.73	- -	S. 26 30	- -	- -
31	φ Sagittarii - - -	4.5	18 35 16.72	- -	S. 27 9	- -	- -
	σ Sagittarii - - -	3	18 44 57.76	- -	26 30	- -	- -
	Moon II. l. c.	- -	18 31 5.68	146.27	23 51	70.14	- -
	Moon II. u. c.	(21.8)	19 0 8.57	144.11	23 55	69.61	- -
	h ² Sagittarii - - -	4.5	19 26 35.31	- -	S. 25 14	- -	- -
April 1	h ² Sagittarii - - -	4.5	19 26 35.34	- -	S. 25 14	- -	- -
	Moon II. l. c.	- -	19 28 42.31	141.43	23 39	68.94	- -
	Moon II. u. c.	(22.8)	19 56 41.24	138.34	23 4	68.15	- -
	α ² Capricorni - - -	3	20 8 49.57	- -	13 3	- -	- -
	f Capricorni - - -	6	20 19 45.67	- -	S. 22 56	- -	- -
2	α ² Capricorni - - -	3	20 8 49.60	- -	S. 13 3	- -	- -
	f Capricorni - - -	6	20 19 45.70	- -	22 56	- -	- -
	Moon II. l. c.	- -	20 24 1.30	134.98	22 11	67.28	- -
	Moon II. u. c.	(23.9)	20 50 40.13	131.49	21 3	66.36	- -
	ζ Capricorni - - -	4	21 17 9.54	- -	23 7	- -	- -
	ε Capricorni - - -	5	21 27 45.56	- -	S. 20 12	- -	- -
3	ζ Capricorni - - -	4	21 17 9.57	- -	S. 23 7	- -	- -
	ε Capricorni - - -	5	21 27 45.59	- -	S. 20 12	- -	- -

426 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of C's 8m. pass. mer.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Declination.		
April 3	Moon II. <i>l. c.</i>	- -	^h 21 ^m 16 ^s 37.07	128.02	S. 19 40	65.41	April 15
	Moon II. <i>u. c.</i> (24.9)		21 41 53.11	124.69	18 4	64.53	
	♈ Aquarii - - -	4.5	21 57 26.71	- -	S. 14 40	- -	
4	♈ Aquarii - - -	4.5	21 57 26.73	- -	S. 14 40	- -	16
	Moon II. <i>l. c.</i>	- -	22 6 30.53	121.60	16 16	63.67	
	Moon II. <i>u. c.</i> (25.9)		22 30 32.70	118.83	S. 14 19	62.89	
5	Moon II. <i>l. c.</i>	- -	22 54 3.84	116.43	S. 12 13	62.21	
	Moon II. <i>u. c.</i> (27.0)		23 17 8.80	114.47	10 1	61.63	
6	Moon II. <i>l. c.</i>	- -	23 39 52.87	112.96	S. 7 42	61.18	
	Moon II. <i>u. c.</i> (28.0)		0 2 21.70	111.93	5 19	60.86	
7	Moon II. <i>l. c.</i>	- -	0 24 41.09	111.39	S. 2 53	60.69	
	Moon II. <i>u. c.</i> (29.0)		0 46 56.95	111.34	S. 0 24	60.66	
8	Moon II. <i>l. c.</i>	- -	1 9 15.32	111.81	N. 2 4	60.78	
9	Moon I. <i>u. c.</i> (0.3)		1 29 40.16	112.71	N. 4 33	61.05	
	Moon I. <i>l. c.</i>	- - -	1 52 20.86	114.16	6 59	61.45	
10	Moon I. <i>u. c.</i> (1.3)		2 15 21.81	116.08	N. 9 22	62.00	
	Moon I. <i>l. c.</i>	- -	2 38 48.68	118.48	11 40	62.68	
11	Moon I. <i>u. c.</i> (2.4)		3 2 46.99	121.31	N. 13 51	63.47	
	Moon I. <i>l. c.</i>	- -	3 27 21.64	124.53	15 55	64.37	
12	Moon I. <i>u. c.</i> (3.4)		3 52 36.86	128.06	N. 17 48	65.34	
	Moon I. <i>l. c.</i>	- -	4 18 35.83	131.80	19 30	66.36	
	α Tauri - - - -	1	4 26 22.92	- -	N. 16 10	- -	
13	α Tauri - - - -	1	4 26 22.91	- -	N. 16 10	- -	
	Moon I. <i>u. c.</i> (4.4)		4 45 20.41	135.64	20 59	67.39	
	Moon I. <i>l. c.</i>	- -	5 12 50.82	139.41	22 13	68.39	
	η Tauri - - - -	5.6	5 9 16.73	- -	21 55	- -	
	β Tauri - - - -	2	5 15 47.10	- -	N. 28 28	- -	
14	η Tauri - - - -	5.6	5 9 16.72	- -	N. 21 55	- -	
	β Tauri - - - -	2	5 15 47.09	- -	28 28	- -	
	Moon I. <i>u. c.</i> (5.5)		5 41 5.33	142.96	23 9	69.32	
	Moon I. <i>l. c.</i>	- -	6 10 0.19	146.10	23 47	70.14	
	η Geminorum -	4.5	6 4 50.61	- -	22 33	- -	
	μ Geminorum -	3	6 12 54.25	- -	N. 22 35	- -	
15	η Geminorum -	4.5	6 4 50.59	- -	N. 22 33	- -	
	μ Geminorum -	3	6 12 54.23	- -	22 35	- -	
	Moon I. <i>u. c.</i> (6.5)		6 39 29.50	148.68	24 4	70.81	
	Moon I. <i>l. c.</i>	- -	7 9 25.70	150.56	24 0	71.29	
	δ Ge 1 -	3.4	7 10 11.76	- -	N. 22 17	- -	

MOON-CULMINATING STARS.

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1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of ☾'s Sem. pass. mer.
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.		
April 15	β Geminorum -	2	^h 7 ^m 35 ^s 8 '60	- -	N. 28° 25'	- -	- -
16	δ Geminorum -	3.4	7 10 11 '74	- -	N. 22 17	- -	- -
	β Geminorum -	2	7 35 8 '59	- -	28 25	- -	- -
	Moon I. u.c. (7 '6)		7 39 39 '90	151 '68	23 34		71 '57
	Moon I. l.c. -	-	8 10 2 '88	152 '03	22 45		71 '66
	6 Cancri - - -	5.6	7 53 18 '21	- -	28 15	- -	- -
	θ Cancri - - -	5.6	8 22 7 '18	- -	N. 18 39	- -	- -
17	6 Cancri - - -	5.6	7 53 18 '19	- -	N. 28 15	- -	- -
	θ Cancri - - -	5.6	8 22 7 '16	- -	18 39	- -	- -
	Moon I. u.c. (8 '6)		8 40 25 '73	151 '67	21 34		71 '57
	Moon I. l.c. -	-	9 10 40 '68	150 '74	20 1		71 '34
	ξ Cancri - - -	5.6	8 59 48 '32	- -	22 43	- -	- -
	λ Leonis - - -	4.5	9 22 14 '58	- -	N. 23 42	- -	- -
18	ξ Cancri - - -	5.6	8 59 48 '30	- -	N. 22 43	- -	- -
	λ Leonis - - -	4.5	9 22 14 '57	- -	23 42	- -	- -
	Moon I. u.c. (9 '6)		9 40 41 '93	149 '41	18 8		70 '99
	Moon I. l.c. -	-	10 10 25 '72	147 '87	15 55		70 '58
	α Leonis - - - *	1	9 59 32 '01	- -	12 47	- -	- -
	γ Leonis - - -	2	10 10 49 '07	- -	N. 20 41	- -	- -
19	α Leonis - - - *	1	9 59 32 '00	- -	N. 12 47	- -	- -
	γ Leonis - - -	2	10 10 49 '04	- -	20 41	- -	- -
	Moon I. u.c. (10 '7)		10 39 50 '76	146 '32	13 26		70 '17
	Moon I. l.c. -	-	11 8 57 '91	144 '92	10 42		69 '78
	χ Leonis - - - *	4.5	10 56 27 '79	- -	8 14	- -	- -
	σ Leonis - - - *	4	11 12 35 '28	- -	N. 6 56	- -	- -
20	χ Leonis - - - *	4.5	10 56 27 '78	- -	N. 8 14	- -	- -
	σ Leonis - - - *	4	11 12 35 '27	- -	6 56	- -	- -
	Moon I. u.c. (11 '7)		11 37 49 '98	143 '82	7 46		69 '47
	Moon I. l.c. -	-	12 6 31 '21	143 '13	4 42		69 '27
	ο Virginis - - - *	4.5	11 56 46 '04	- -	9 39	- -	- -
	η Virginis - - -	3.4	12 11 25 '73	- -	N. 0 15	- -	- -
21	ο Virginis - - - *	4.5	11 56 46 '03	- -	N. 9 39	- -	- -
	η Virginis - - -	3.4	12 11 25 '73	- -	0 15	- -	- -
	Moon I. u.c. (12 '7)		12 35 7 '03	142 '92	N. 1 32		69 '18
	Moon I. l.c. -	-	13 3 43 '38	143 '22	S. 1 40		69 '23
	δ Virginis - - - *	3.4	12 47 15 '59	- -	N. 4 18	- -	- -
	α Virginis - - -	1	13 16 28 '31	- -	S. 10 18	- -	- -
22	δ Virginis - - - *	3.4	12 47 15 '59	- -	N. 4 18	- -	- -
	α Virginis - - -	1	13 16 28 '31	- -	S. 10 18	- -	- -
	Moon I. u.c. (13 '8)		13 32 26 '30	144 '02	4 50		69 '41
	Moon I. l.c. -	-	14 1 21 '44	145 '24	7 56		69 '70
	κ Virginis - - -	4	14 4 4 '24	- -	9 30	- -	- -
	ι Virginis - - -	4	14 7 20 '33	- -	S. 5 12	- -	- -

MOON-CULMINATING STARS.

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1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
April 30	♈ Aquarii - - -	4.5	^h 21 ^m 57 ^s 27.42	- -	S. 14° 40'	- -
May 1	♈ Aquarii - - -	4.5	21 57 27.45	- -	S. 14 40	- -
	Moon II. <i>l. c.</i> - -	- -	21 49 35.40	124.87	17 45	64.73
	Moon II. <i>u. c.</i> (23.1)	- -	22 14 12.77	121.43	15 53	63.80
	♈ Aquarii - - -	3	22 45 49.40	- -	S. 16 42	- -
2	♈ Aquarii - - -	3	22 45 49.43	- -	S. 16 42	- -
	Moon II. <i>l. c.</i> - -	- -	22 38 11.27	118.41	13 51	62.96
	Moon II. <i>u. c.</i> (24.2)	- -	23 1 36.40	115.87	11 42	62.23
	♏ Piscium - - -	5.6	23 39 23.33	- -	S. 3 41	- -
3	♏ Piscium - - -	5.6	23 39 23.35	- -	S. 3 41	- -
	Moon II. <i>l. c.</i> - -	- -	23 24 34.24	113.86	9 26	61.65
	Moon II. <i>u. c.</i> (25.2)	- -	23 47 11.17	112.39	S. 7 5	61.20
4	Moon II. <i>l. c.</i> - -	- -	0 9 33.76	111.47	S. 4 40	60.91
	Moon II. <i>u. c.</i> (26.2)	- -	0 31 48.66	111.11	S. 2 12	60.77
5	Moon II. <i>l. c.</i> - -	- -	0 54 2.56	111.31	N. 0 18	60.79
	Moon II. <i>u. c.</i> (27.2)	- -	1 16 22.20	112.06	2 48	60.97
6	Moon II. <i>l. c.</i> - -	- -	1 38 54.11	113.35	N. 5 17	61.30
	Moon II. <i>u. c.</i> (28.3)	- -	2 1 44.78	115.18	7 44	61.78
7	Moon II. <i>l. c.</i> - -	- -	2 25 0.44	117.51	N. 10 7	62.40
	Moon II. <i>u. c.</i> (29.3)	- -	2 48 46.91	120.31	12 26	63.14
8	Moon I. <i>l. c.</i> - -	- -	3 11 1.55	123.37	N. 14 37	64.00
9	Moon I. <i>u. c.</i> (0.7)	- -	3 36 2.90	126.91	N. 16 40	64.95
	Moon I. <i>l. c.</i> - -	- -	4 1 48.27	130.68	18 32	65.95
10	Moon I. <i>u. c.</i> (1.7)	- -	4 28 19.61	134.55	N. 20 11	66.97
	Moon I. <i>l. c.</i> - -	- -	4 55 37.31	138.37	21 36	67.97
11	Moon I. <i>u. c.</i> (2.7)	- -	5 23 39.57	141.95	N. 22 45	68.90
	Moon I. <i>l. c.</i> - -	- -	5 52 22.37	145.09	23 35	69.72
12	Moon I. <i>u. c.</i> (3.8)	- -	6 21 39.38	147.63	N. 24 6	70.39
	Moon I. <i>l. c.</i> - -	- -	6 51 22.49	149.42	24 16	70.85
13	Moon I. <i>u. c.</i> (4.8)	- -	7 21 22.08	150.37	N. 24 3	71.12
	Moon I. <i>l. c.</i> - -	- -	7 51 28.14	150.50	23 29	71.18
14	♊ Geminorum -	5	7 43 19.00	- -	N. 27 11	- -
	♋ Canceri - - -	6	7 56 27.05	- -	23 6	- -
	Moon I. <i>u. c.</i> (5.9)	- -	8 21 30.99	149.86	22 32	71.05
	Moon I. <i>l. c.</i> - -	- -	8 51 22.23	148.59	21 15	70.76
	♋ Canceri - - -	5	8 33 39.74	- -	N. 22 4	- -

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☿'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☿'s Sem. pass. mer.
May 14	ξ Cancri - - -	5.6	^h 8 ^m 59 ^s 47.92	- -	N. 22° 43'	- -
15	γ Cancri - - -	5	8 33 39.73	- -	N. 22 4	- -
	ξ Cancri - - -	5.6	8 59 47.90	- -	22 43	- -
	Moon I. u.c. (6.9)		9 20 55.40	146.88	19 36	70.35
	Moon I. l.c. - -		9 50 6.46	144.94	17 39	69.87
	ν Leonis - - *	5.6	9 49 17.26	- -	13 14	- -
	α Leonis - - *	1	9 59 31.67	- -	N. 12 47	- -
16	ν Leonis - - *	5.6	9 49 17.25	- -	N. 13 14	- -
	α Leonis - - *	1	9 59 31.66	- -	12 47	- -
	Moon I. u.c. (7.9)		10 18 53.83	142.97	15 25	69.37
	Moon I. l.c. - -		10 47 18.33	141.16	12 56	68.92
	ρ Leonis - - *	4	10 24 4.15	- -	10 10	- -
	χ Leonis - - *	4.5	10 56 27.52	- -	N. 8 14	- -
17	ρ Leonis - - *	4	10 24 4.14	- -	N. 10 10	- -
	χ Leonis - - *	4.5	10 56 27.50	- -	8 14	- -
	Moon I. u.c. (9.0)		11 15 22.87	139.67	10 14	68.54
	Moon I. l.c. - -		11 43 12.10	138.62	7 22	68.26
	ν Virginis - - *	4.5	11 37 20.21	- -	7 28	- -
	π Virginis - - *	5	11 52 21.96	- -	N. 7 32	- -
18	ν Virginis - - *	4.5	11 37 20.20	- -	N. 7 28	- -
	π Virginis - - *	5	11 52 21.96	- -	7 32	- -
	Moon I. u.c. (10.0)		12 10 51.96	138.12	4 22	68.11
	Moon I. l.c. - -		12 38 29.26	138.20	N. 1 17	68.11
	γ ¹ Virginis - - -	4	12 33 16.03	- -	S. 0 32	- -
	δ Virginis - - *	3.4	12 47 15.51	- -	N. 4 18	- -
19	γ ¹ Virginis - - -	4	12 33 16.02	- -	S. 0 32	- -
	δ Virginis - - *	3.4	12 47 15.51	- -	N. 4 18	- -
	Moon I. u.c. (11.0)		13 6 11.26	138.90	S. 1 50	68.26
	Moon I. l.c. - -		13 34 5.17	140.19	4 57	68.56
	α Virginis - - -	1	13 16 28.45	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 15.67	- -	N. 0 15	- -
20	α Virginis - - -	1	13 16 28.51	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 15.67	- -	N. 0 15	- -
	Moon I. u.c. (12.1)		14 2 17.83	142.01	S. 7 59	69.00
	Moon I. l.c. - -		14 30 55.15	144.27	10 54	69.54
	λ Virginis - - -	4	14 10 9.93	- -	12 36	- -
	α ² Libræ - - -	3	14 41 43.91	- -	S. 15 21	- -
21	λ Virginis - - -	4	14 10 9.93	- -	S. 12 36	- -
	α ² Libræ - - -	3	14 41 43.91	- -	15 21	- -
	Moon I. u.c. (13.1)		15 0 1.48	146.82	13 39	70.16
	Moon I. l.c. - -		15 29 39.15	149.46	16 9	70.79
	γ Libræ - - -	4.5	15 26 16.53	- -	14 14	- -
	η Libræ - - -	4.5	15 34 46.34	- -	S. 15 8	- -

MOON-CULMINATING STARS. 431

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of ☾'s Sem. pass. mer.
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.		
			^h ^m ^s	^s	[°] [']	^s	
May 22	γ Libræ - - -	4.5	15 26 16.54	- -	S. 14 14	- -	- -
	η Libræ - - -	4.5	15 34 46.34	151.96	15 8	- -	- -
	Moon II. u.c. (14.2)		16 2 10.67	152.05	18 24	71.40	
	α Scorpii - - -	1	16 19 15.97	- -	S. 26 3	- -	- -
23	α Scorpii - - -	1	16 19 15.99	- -	S. 26 3	- -	- -
	Moon II. l.c. - -	- -	16 32 48.32	154.13	20 19	71.91	
	Moon II. u.c. (15.2)		17 3 47.11	155.53	21 53	72.27	
	D Ophiuchi - - -	5	17 33 30.31	- -	21 36	- -	- -
24	b Sagittarii - - -	5	17 49 40.32	- -	S. 23 48	- -	- -
	D Ophiuchi - - -	5	17 33 30.33	- -	S. 21 36	- -	- -
	b Sagittarii - - -	5	17 49 40.35	- -	23 48	- -	- -
	Moon II. l.c. - -	- -	17 34 57.65	156.06	23 4	72.42	
	Moon II. u.c. (16.2)		18 6 8.42	155.56	23 51	72.33	
	φ Sagittarii - - -	4.5	18 35 18.41	- -	27 9	- -	- -
25	σ Sagittarii - - -	3	18 44 59.47	- -	S. 26 30	- -	- -
	φ Sagittarii - - -	4.5	18 35 18.43	- -	S. 27 9	- -	- -
	σ Sagittarii - - -	3	18 44 59.49	- -	26 30	- -	- -
	Moon II. l.c. - -	- -	18 37 6.70	153.98	24 15	71.98	
	Moon II. u.c. (17.3)		19 7 39.91	151.39	24 15	71.39	
	h ² Sagittarii - - -	4.5	19 26 37.09	- -	25 14	- -	- -
26	b Sagittarii - - -	5	19 46 46.20	- -	S. 27 36	- -	- -
	h ² Sagittarii - - -	4.5	19 26 37.12	- -	S. 25 14	- -	- -
	b Sagittarii - - -	5	19 46 46.23	- -	27 36	- -	- -
	Moon II. l.c. - -	- -	19 37 36.80	147.96	23 53	70.58	
	Moon II. u.c. (18.3)		20 6 48.57	143.91	23 10	69.61	
	ψ Capricorni - - -	4.5	20 36 16.26	- -	S. 25 52	- -	- -
27	ψ Capricorni - - -	4.5	20 36 16.29	- -	S. 25 52	- -	- -
	Moon II. l.c. - -	- -	20 35 9.13	139.48	22 8	68.52	
	Moon II. u.c. (19.3)		21 2 35.56	134.91	20 50	67.38	
	γ Capricorni - - -	4	21 30 53.67	- -	S. 17 24	- -	- -
28	γ Capricorni - - -	4	21 30 53.70	- -	S. 17 24	- -	- -
	Moon II. l.c. - -	- -	21 29 7.29	130.42	19 17	66.23	
	Moon II. u.c. (20.4)		21 54 46.69	126.20	17 32	65.13	
	σ Aquarii - - -	5	22 21 51.67	- -	S. 11 31	- -	- -
29	σ Aquarii - - -	5	22 21 51.70	- -	S. 11 31	- -	- -
	Moon II. l.c. - -	- -	22 19 37.54	122.36	15 36	64.11	
	Moon II. u.c. (21.4)		22 43 45.17	119.00	13 31	63.20	
	χ Aquarii - - -	5.6	23 8 14.23	- -	S. 8 38	- -	- -
30	χ Aquarii - - -	5.6	23 8 14.26	- -	S. 8 38	- -	- -
	Moon II. l.c. - -	- -	23 7 15.79	116.19	11 18	62.43	
	Moon II. u.c. (22.4)		23 30 16.15	113.97	9 0	61.80	
	r Piscium - - -	4.5	23 53 26.62	- -	S. 6 56	- -	- -

432 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Ti. of C's Se. pass. n.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Declination.		
May 31	<i>r</i> Piscium - - -	4.5	^h 23 ^m 53 ^s 26.65	- -	S. 6° 56'	-	-
	Moon II. <i>l. c.</i> - -	- -	23 52 53.45	112° 35'	6 37	61°	-
	Moon II. <i>u. c.</i> (23° 5')	- -	0 15 15.05	111° 35'	4 10	61°	-
	<i>m</i> Ceti - - - -	5	0 44 31.30	- -	S. 2 3	-	-
June 1	<i>m</i> Ceti - - - -	5	0 44 31.32	- -	S. 2 3	-	-
	Moon II. <i>l. c.</i> - -	- -	0 37 28.38	110° 98'	S. 1 41	60°	-
	Moon II. <i>u. c.</i> (24° 5')	- -	0 59 40.94	111° 22'	N. 0 49	60°	-
	- - - -	- -	- -	- -	- -	-	-
2	Moon II. <i>l. c.</i> - -	- -	1 22 0.12	112° 08'	N. 3 20	61°	-
	Moon II. <i>u. c.</i> (25° 5')	- -	1 44 33.32	113° 55'	5 49	61°	-
3	Moon II. <i>l. c.</i> - -	- -	2 7 27.71	115° 61'	N. 8 16	62°	-
	Moon II. <i>u. c.</i> (26° 6')	- -	2 30 50.28	118° 24'	10 39	62°	-
4	Moon II. <i>l. c.</i> - -	- -	2 54 47.52	121° 39'	N. 12 57	63°	-
	Moon II. <i>u. c.</i> (27° 6')	- -	3 19 25.37	124° 99'	15 7	64°	-
5	Moon II. <i>l. c.</i> - -	- -	3 44 48.78	128° 97'	N. 17 9	65°	-
	Moon II. <i>u. c.</i> (28° 6')	- -	4 11 1.45	133° 17'	18 59	66°	-
6	Moon II. <i>l. c.</i> - -	- -	4 38 5.05	137° 44'	N. 20 37	67°	-
7	Moon I. <i>u. c.</i> (0° 1')	- -	5 3 41.96	141° 41'	N. 21 59	68°	-
	Moon I. <i>l. c.</i> - -	- -	5 32 22.04	145° 20'	23 4	69°	-
8	Moon I. <i>u. c.</i> (1° 1')	- -	6 1 44.35	148° 40'	N. 23 50	70°	-
	Moon I. <i>l. c.</i> - -	- -	6 31 40.57	150° 82'	24 14	71°	-
9	Moon I. <i>u. c.</i> (2° 2')	- -	7 2 0.24	152° 28'	N. 24 17	71°	-
	Moon I. <i>l. c.</i> - -	- -	7 32 31.35	152° 74'	23 57	71°	-
10	Moon I. <i>u. c.</i> (3° 2')	- -	8 3 1.99	152° 21'	N. 23 14	71°	-
	Moon I. <i>l. c.</i> - -	- -	8 33 20.85	150° 81'	22 9	71°	-
11	Moon I. <i>u. c.</i> (4° 2')	- -	9 3 18.83	148° 76'	N. 20 42	70°	-
	Moon I. <i>l. c.</i> - -	- -	9 32 49.36	146° 28'	18 56	70°	-
	α Leonis - - - *	1	9 59 31.38	- -	N. 12 47	-	-
12	α Leonis - - - *	1	9 59 31.38	- -	N. 12 47	-	-
	Moon I. <i>u. c.</i> (5° 3')	- -	10 1 48.82	143° 62'	16 52	69°	-
	Moon I. <i>l. c.</i> - -	- -	10 30 16.56	141° 03'	14 32	68°	-
	ρ Leonis - - - *	4	10 24 3.87	- -	N. 10 10	-	-
13	ρ Leonis - - - *	4	10 24 3.86	- -	N. 10 10	-	-
	Moon I. <i>u. c.</i> (6° 3')	- -	10 58 14.46	138° 69'	12 0	68°	-
	Moon I. <i>l. c.</i> - -	- -	11 25 46.64	136° 76'	9 16	67°	-
	ν Virginis - - - *	4.5	11 37 19.94	- -	7 28	-	-
	β Virginis - - - *	3.4	11 42 3.50	- -	N. 2 42	-	-

MOON-CULMINATING STARS. 433

834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
			^h ^m ^s	^s	[°] [']	^s
ne 14	ν Virginis - - *	4.5	11 37 19.93	- -	N. 7 28	- -
	β Virginis - - -	3.4	11 42 3.49	- -	2 42	- -
	Moon I. v.c. (7.4)		11 52 58.85	135.37	6 24	67.42
	Moon I. l.c. - -		12 19 58.07	134.61	3 26	67.22
	η Virginis - - -	3.4	12 11 25.35	- -	N. 0 15	- -
	γ Virginis - - -	4	12 33 15.81	- -	S. 0 32	- -
15	η Virginis - - -	3.4	12 11 25.34	- -	N. 0 15	- -
	γ Virginis - - -	4	12 33 15.80	- -	S. 0 32	- -
	Moon I. v.c. (8.4)		12 46 52.07	134.51	N. 0 24	67.19
	Moon I. l.c. - -		13 13 48.94	135.09	S. 2 38	67.33
	α Virginis - - -	1	13 16 28.36	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 15.53	- -	N. 0 15	- -
16	α Virginis - - -	1	13 16 28.35	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 15.52	- -	N. 0 15	- -
	Moon I. v.c. (9.4)		13 40 56.74	136.32	S. 5 38	67.64
	Moon I. l.c. - -		14 8 23.12	138.17	8 34	68.09
	ι Virginis - - -	4	14 7 20.38	- -	S. 5 12	- -
17	ι Virginis - - -	4	14 7 20.38	- -	S. 5 12	- -
	Moon I. v.c. (10.5)		14 36 14.85	140.54	11 23	68.67
	Moon I. l.c. - -		15 4 37.44	143.28	14 1	69.33
	α ² Libræ - - -	3	14 41 43.91	- -	15 21	- -
	β Libræ - - -	2.3	15 8 6.53	- -	S. 8 46	- -
18	α ² Libræ - - -	3	14 41 43.91	- -	S. 15 21	- -
	β Libræ - - -	2.3	15 8 6.52	- -	8 46	- -
	Moon I. v.c. (11.5)		15 33 34.23	146.21	16 27	70.04
	Moon I. l.c. - -		16 3 6.29	149.11	18 36	70.73
	ω ² Scorpii - - -	4.5	15 57 42.72	- -	20 25	- -
	α Scorpii - - -	1	16 19 16.23	- -	S. 26 3	- -
19	ω ² Scorpii - - -	4.5	15 57 42.72	- -	S. 20 25	- -
	α Scorpii - - -	1	16 19 16.23	- -	26 3	- -
	Moon I. v.c. (12.5)		16 33 11.64	151.71	20 28	71.34
	Moon I. l.c. - -		17 3 45.02	153.74	21 59	71.82
	A Ophiuchi - - -	4.5	17 5 10.90	- -	26 21	- -
	ρ Ophiuchi - - -	4.5	17 11 5.39	- -	S. 20 56	- -
20	A Ophiuchi - - -	4.5	17 5 10.91	- -	S. 26 21	- -
	ρ Ophiuchi - - -	4.5	17 11 5.39	- -	20 56	- -
	Moon I. v.c. (13.6)		17 34 38.09	154.94	23 8	72.09
	μ Sagittarii - - -	3.4	18 3 52.28	- -	21 6	- -
	λ Sagittarii - - -	4	18 17 45.52	- -	S. 25 30	- -
21	μ Sagittarii - - -	3.4	18 3 52.30	- -	S. 21 6	- -
	λ Sagittarii - - -	4	18 17 45.54	- -	25 30	- -
	Moon II. l.c. - -		18 8 3.88	155.12	23 54	72.13
	Moon II. v.c. (14.6)		18 39 0.64	154.15	S. 24 16	71.91

434 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
June 21	☿ Sagittarii - - -	4.5	^h 18 ^m 59 ^s 55.20	- -	S. 21° 17'	- -
	♄ Sagittarii - - -	4.5	19 26 37.80	- -	25 14	- -
22	☿ Sagittarii - - -	4.5	18 59 55.22	- -	S. 21 17	- -
	♄ Sagittarii - - -	4.5	19 26 37.82	- -	25 14	- -
	Moon II. <i>l. c.</i> - -	- -	19 9 39.08	152.08	24 15	71.43
	Moon II. <i>v. c.</i> (15.7)	- -	19 39 46.74	149.05	23 51	70.71
	♄ Capricorni - - -	5.6	20 9 50.25	- -	S. 19 38	- -
23	♄ Capricorni - - -	5.6	20 9 50.28	- -	S. 19 38	- -
	Moon II. <i>l. c.</i> - -	- -	20 9 13.14	145.25	23 7	69.80
	Moon II. <i>v. c.</i> (16.7)	- -	20 37 50.60	140.94	22 3	68.76
	☿ Capricorni - - -	5	20 54 58.54	- -	S. 20 30	- -
	☿ Capricorni - - -	5	20 54 58.58	- -	S. 20 30	- -
24	Moon II. <i>l. c.</i> - -	- -	21 5 34.63	136.38	20 42	67.64
	Moon II. <i>v. c.</i> (17.7)	- -	21 32 23.71	131.82	19 6	66.49
	♄ Aquarii - - -	4.5	21 57 29.16	- -	S. 14 40	- -
	♄ Aquarii - - -	4.5	21 57 29.19	- -	S. 14 40	- -
	Moon II. <i>l. c.</i> - -	- -	21 58 19.02	127.45	17 18	65.37
25	Moon II. <i>v. c.</i> (18.8)	- -	22 23 23.83	123.43	15 19	64.33
	♄ Aquarii - - -	3	22 45 51.14	- -	S. 16 42	- -
	♄ Aquarii - - -	3	22 45 51.17	- -	S. 16 42	- -
	Moon II. <i>l. c.</i> - -	- -	22 47 43.06	119.87	13 11	63.40
	Moon II. <i>v. c.</i> (19.8)	- -	23 11 22.78	116.85	10 55	62.59
26	♄ Piscium - - -	4.5	23 53 27.47	- -	S. 6 56	- -
	♄ Piscium - - -	4.5	23 53 27.50	- -	S. 6 56	- -
	Moon II. <i>l. c.</i> - -	- -	23 34 29.84	114.43	8 35	61.93
	Moon II. <i>v. c.</i> (20.8)	- -	23 57 11.51	112.63	S. 6 10	61.43
	Moon II. <i>l. c.</i> - -	- -	0 19 35.39	111.46	S. 3 42	61.11
27	Moon II. <i>v. c.</i> (21.8)	- -	0 41 49.20	110.95	S. 1 12	60.96
	♄ Piscium - - -	4	0 54 20.47	- -	N. 7 0	- -
	☿ Piscium - - -	4	1 22 36.86	- -	N. 14 29	- -
	♄ Piscium - - -	4	0 54 20.51	- -	N. 7 0	- -
	☿ Piscium - - -	4	1 22 36.89	- -	14 29	- -
28	Moon II. <i>l. c.</i> - -	- -	1 4 0.77	111.09	1 18	60.98
	Moon II. <i>v. c.</i> (22.9)	- -	1 26 17.91	111.88	3 48	61.19
	♄ Ceti - - -	5	2 4 12.74	- -	N. 8 4	- -
	♄ Ceti - - -	5	2 4 12.77	- -	N. 8 4	- -
	Moon II. <i>l. c.</i> - -	- -	1 48 48.43	113.32	6 16	61.57
29	Moon II. <i>v. c.</i> (23.9)	- -	2 11 40.03	113.39	8 42	62.12
	☿ Ceti - - -	4.5	2 27 10.14	- -	4 52	- -
	☿ Ceti - - -	4	2 35 38.45	- -	N. 9 25	- -
	☿ Ceti - - -	4	2 35 38.45	- -	N. 9 25	- -
	☿ Ceti - - -	4	2 35 38.45	- -	N. 9 25	- -

MOON-CULMINATING STARS. 435

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of G's R. A. in 1 hour of Long.	Declination.	Sid. Time of G's Sem. pass. mer.
			^h ^m ^s	^s	[°] ['] ["]	^s
July 1	ν Ceti - - - *	4.5	2 27 10.17	- -	N. 4 52	- -
	μ Ceti - - - *	4	2 35 58.48	- -	9 25	- -
	Moon II. <i>l. c.</i>	- -	2 35 0.32	118.09	11 3	62.83
	Moon II. <i>u. c.</i> (24.9)	- -	2 58 56.52	121.37	N.13 19	63.68
2	Moon II. <i>l. c.</i>	- -	3 23 35.26	125.17	N.15 28	64.67
	Moon II. <i>u. c.</i> (26.0)	- -	3 49 2.35	129.41	17 27	65.76
	α Tauri - - -	1	4 26 23.57	- -	N.16 10	- -
3	α Tauri - - -	1	4 26 23.60	- -	N.16 10	- -
	Moon II. <i>l. c.</i>	- -	4 15 22.22	133.95	19 16	66.90
	Moon II. <i>u. c.</i> (27.0)	- -	4 42 37.52	138.61	N.20 51	68.07
4	Moon II. <i>l. c.</i>	- -	5 10 48.47	143.18	N.22 11	69.20
	Moon II. <i>u. c.</i> (28.0)	- -	5 39 52.42	147.40	23 13	70.22
5	Moon II. <i>l. c.</i>	- -	6 9 43.58	150.99	N.23 56	71.10
	Moon II. <i>u. c.</i> (29.1)	- -	6 40 12.80	153.71	24 16	71.76
6	Moon I. <i>l. c.</i>	- -	7 8 44.17	155.33	N.24 14	72.16
7	Moon I. <i>u. c.</i> (0.6)	- -	7 39 52.70	155.88	N.23.48	72.29
	Moon I. <i>l. c.</i>	- -	8 11 0.89	155.30	22 58	72.17
8	Moon I. <i>u. c.</i> (1.7)	- -	8 41 55.97	153.72	N.21 45	71.80
	Moon I. <i>l. c.</i>	- -	9 12 27.20	151.37	20 10	71.24
9	Moon I. <i>u. c.</i> (2.7)	- -	9 42 26.88	148.51	N.18 15	70.57
	Moon I. <i>l. c.</i>	- -	10 11 50.60	145.43	16 3	69.83
	α Leonis - - - *	1	9 59 31.22	- -	N.12 47	- -
10	α Leonis - - - *	1	9 59 31.22	- -	N.12 47	- -
	Moon I. <i>u. c.</i> (3.8)	- -	10 40 37.43	142.40	13 35	69.10
	Moon I. <i>l. c.</i>	- -	11 8 49.16	139.62	10 56	68.43
	ϵ Leonis - - - *	4	11 15 15.92	- -	N.11 27	- -
11	ϵ Leonis - - - *	4	11 15 15.92	- -	N.11 27	- -
	Moon I. <i>u. c.</i> (4.8)	- -	11 36 30.02	137.28	8 6	67.85
	Moon I. <i>l. c.</i>	- -	12 3 46.06	135.50	5 10	67.42
	β Virginis - - -	3.4	11 42 3.25	- -	2 42	- -
	η Virginis - - -	3.4	12 11 25.09	- -	N. 0 15	- -
12	β Virginis - - -	3.4	11 42 3.24	- -	N. 2 42	- -
	η Virginis - - -	3.4	12 11 25.08	- -	0 15	- -
	Moon I. <i>u. c.</i> (5.8)	- -	12 30 44.50	134.36	N. 2 10	67.14
	Moon I. <i>l. c.</i>	- -	12 57 33.34	133.90	S. 0 51	67.04
	δ Virginis - - - *	3.4	12 47 15.04	- -	N. 4 18	- -
	α Virginis - - -	1	13 16 28.10	- -	S.10 18	- -
13	δ Virginis - - - *	3.4	12 47 15.03	- -	N. 4 18	- -

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ♄'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ♄'s Sem. pass. mer.
July 13	♌ Virginis - - -	1	^h ^m ^s 13 16 28 '09	- -	[°] ['] S. 10 18	- -
	Moon I. v.c.	(6 '9)	13 24 20 '81	134 '13	3 52	67 '11
	Moon I. l.c.	- -	13 51 15 '13	135 '03	6 48	67 '34
	♌ Virginis - - -	4	14 7 20 '17	- -	S. 5 12	- -
14	♌ Virginis - - -	4	14 7 20 '15	- -	S. 5 12	- -
	Moon I. v.c.	(7 '9)	14 18 24 '04	136 '55	9 39	67 '72
	Moon I. l.c.	- -	14 45 54 '41	138 '59	12 21	68 '23
	♌ Librae - - -	3	14 41 43 '73	- -	15 21	- -
	♌ Librae - - -	4.5	14 52 8 '03	- -	S. 7 51	- -
15	♌ Librae - - -	3	14 41 43 '72	- -	S. 15 21	- -
	♌ Librae - - -	4.5	14 52 8 '02	- -	7 51	- -
	Moon I. v.c.	(8 '9)	15 13 51 '78	141 '03	14 52	68 '83
	Moon I. l.c.	- -	15 42 19 '90	143 '69	17 9	69 '48
	♌ Librae - - -	4.5	15 34 46 '36	- -	15 8	- -
	♌ Librae - - -	4.5	15 44 24 '70	- -	S. 16 14	- -
16	♌ Librae - - -	4.5	15 34 46 '35	- -	S. 15 8	- -
	♌ Librae - - -	4.5	15 44 24 '69	- -	16 14	- -
	Moon I. v.c.	(10 '0)	16 11 20 '26	146 '36	19 11	70 '12
	Moon I. l.c.	- -	16 40 51 '63	148 '81	20 55	70 '70
	♌ Scorpii - - -	1	16 19 16 '20	- -	26 3	- -
	♌ Ophiuchi - - -	2.3	17 0 53 '85	- -	S. 15 31	- -
17	♌ Scorpii - - -	1	16 19 16 '19	- -	S. 26 3	- -
	♌ Ophiuchi - - -	2.3	17 0 53 '85	- -	15 31	- -
	Moon I. v.c.	(11 '0)	17 10 49 '77	150 '78	22 18	71 '15
	Moon I. l.c.	- -	17 41 7 '55	152 '04	23 21	71 '42
	♌ Sagittarii - - -	5	17 49 40 '99	- -	S. 23 48	- -
18	♌ Sagittarii - - -	5	17 49 41 '00	- -	S. 23 48	- -
	Moon I. v.c.	(12 '1)	18 11 35 '21	152 '41	24 1	71 '48
	Moon I. l.c.	- -	18 42 1 '32	151 '76	24 18	71 '29
	♌ Sagittarii - - -	4.5	18 35 19 '33	- -	27 9	- -
	♌ Sagittarii - - -	3	18 45 0 '43	- -	S. 26 30	- -
19	♌ Sagittarii - - -	4.5	18 35 19 '33	- -	S. 27 9	- -
	♌ Sagittarii - - -	3	18 45 0 '43	- -	26 30	- -
	Moon I. v.c.	(13 '1)	19 12 13 '52	150 '10	24 12	70 '86
	Moon I. l.c.	- -	19 42 0 '10	147 '51	23 45	70 '21
	♌ Sagittarii - - -	4.5	19 26 38 '24	- -	25 14	- -
	♌ Capricorni - - -	3	20 8 52 '46	- -	S. 13 3	- -
20	♌ Sagittarii - - -	4.5	19 26 38 '25	- -	S. 25 14	- -
	♌ Capricorni - - -	3	20 8 52 '47	- -	13 3	- -
	Moon II. v.c.	(14 '1)	20 13 29 '54	144 '01	22 57	69 '38
	♌ Capricorni - - -	4.5	20 36 17 '70	- -	25 52	- -
	♌ Capricorni - - -	5	20 54 59 '15	- -	S. 20 30	- -

MOON-CULMINATING STARS. 437

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
July 21	ψ Capricorni - -	4.5	^h ^m ^s 20 36 17.71	- -	S. 25 52	- -
	γ Capricorni - -	5	20 54 59.17	- -	20 30	- -
	Moon II. l. c. - -	- -	20 41 54.57	140.09	21 50	68.41
	Moon II. u. c. (15.2)	- -	21 9 30.53	135.88	20 26	67.35
	γ Capricorni - -	4	21 30 55.20	- -	17 24	- -
	δ Capricorni - -	3.4	21 37 54.18	- -	S. 16 53	- -
22	γ Capricorni - -	4	21 30 55.22	- -	S. 17 24	- -
	δ Capricorni - -	3.4	21 37 54.20	- -	16 53	- -
	Moon II. l. c. - -	- -	21 36 15.33	131.60	18 48	66.27
	Moon II. u. c. (16.2)	- -	22 2 9.26	127.43	16 56	65.21
	δ Aquarii - - -	3	22 45 51.91	- -	S. 16 42	- -
23	δ Aquarii - - -	3	22 45 51.93	- -	S. 16 42	- -
	Moon II. l. c. - -	- -	22 27 14.78	123.55	14 55	64.21
	Moon II. u. c. (17.2)	- -	22 51 36.05	120.07	12 44	63.31
	χ Aquarii - - -	5.6	23 8 15.89	- -	S. 8 38	- -
24	χ Aquarii - - -	5.6	23 8 15.92	- -	S. 8 38	- -
	Moon II. l. c. - -	- -	23 15 18.48	117.09	10 27	62.53
	Moon II. u. c. (18.3)	- -	23 38 28.31	114.65	8 4	61.89
	♄ Piscium - - -	5	23 56 51.78	- -	S. 6 38	- -
25	♄ Piscium - - -	5	23 56 51.81	- -	S. 6 38	- -
	Moon II. l. c. - -	- -	0 1 12.33	112.79	5 37	61.39
	Moon II. u. c. (19.3)	- -	0 23 37.72	111.54	3 8	61.07
	m Ceti - - - -	5	0 44 32.98	- -	S. 2 3	- -
26	m Ceti - - - -	5	0 44 33.01	- -	S. 2 3	- -
	Moon II. l. c. - -	- -	0 45 51.88	110.93	S. 0 38	60.91
	Moon II. u. c. (20.3)	- -	1 8 2.46	110.94	N. 1 52	60.93
	ν Piscium - - *	5	1 32 49.03	- -	N. 4 39	- -
27	ν Piscium - - *	5	1 32 49.06	- -	N. 4 39	- -
	Moon II. l. c. - -	- -	1 30 17.06	111.60	4 22	61.13
	Moon II. u. c. (21.3)	- -	1 52 43.32	112.89	6 49	61.48
	ξ Ceti - - - - *	5	2 19 21.31	- -	7 43	- -
	ν Ceti - - - - *	4.5	2 27 10.97	- -	N. 4 52	- -
28	ξ Ceti - - - - *	5	2 19 21.34	- -	N. 7 43	- -
	ν Ceti - - - - *	4.5	2 27 11.00	- -	4 52	- -
	Moon II. l. c. - -	- -	2 15 28.96	114.82	9 13	62.02
	Moon II. u. c. (22.4)	- -	2 38 41.55	117.38	11 32	62.72
	δ Arietis - - - *	4	3 2 9.43	- -	N. 19 6	- -
29	δ Arietis - - -	4	3 2 9.47	- -	N. 19 6	- -
	Moon II. l. c. - -	- -	3 2 28.43	120.53	13 45	63.56
	Moon II. u. c. (23.4)	- -	3 26 56.51	124.24	15 51	64.54
	λ Tauri - - - *	4	3 51 29.79	- -	N. 12 1	- -

1834.	Names,	Mag- nitude.	At Greenwich Transit.				Sid. Time of Sun. pass. mer.
			Apparent Right Ascension in Time.	Var. of Sun's R. A. in 1 hour of Long.	Declination.		
July 30	λ Tauri - - - *	4	^h ^m ^s 3 51 29.82	- -	N. 12 1	-	-
	Moon II. <i>l. c.</i> - -	-	3 52 12.02	128.42	17 47	65.63	-
	Moon II. <i>u. c.</i> (24.4)	-	4 18 20.04	132.97	19 33	66.79	-
	α Tauri - - - -	1	4 26 24.35	- -	N. 16 10	-	-
31	α Tauri - - - -	1	4 26 24.38	- -	N. 16 10	-	-
	Moon II. <i>l. c.</i> - -	-	4 45 24.08	137.73	21 5	67.99	-
	Moon II. <i>u. c.</i> (25.5)	-	5 13 25.44	142.48	22 22	69.17	-
	β Tauri - - - -	2	5 15 48.23	- -	N. 28 28	-	-
Aug. 1	β Tauri - - - -	2	5 15 48.26	- -	N. 28 28	-	-
	Moon II. <i>l. c.</i> - -	-	5 42 22.64	146.99	23 22	70.27	-
	Moon II. <i>u. c.</i> (26.5)	-	6 12 11.11	150.98	N. 24 1	71.22	-
2	Moon II. <i>l. c.</i> - -	-	6 42 43.03	154.19	N. 24 19	71.98	-
	Moon II. <i>u. c.</i> (27.6)	-	7 13 47.58	156.39	24 14	72.49	-
3	Moon II. <i>l. c.</i> - -	-	7 45 11.79	157.45	N. 23 45	72.73	-
	Moon II. <i>u. c.</i> (28.6)	-	8 16 41.72	157.35	22 51	72.70	-
4	Moon II. <i>l. c.</i> - -	-	8 48 3.89	156.17	N. 21 33	72.41	-
5	Moon I. <i>u. c.</i> (0.2)	-	9 16 42.76	154.25	N. 19 52	71.94	-
	Moon I. <i>l. c.</i> - -	-	9 47 18.53	151.64	17 51	71.32	-
6	Moon I. <i>u. c.</i> (1.3)	-	10 17 20.82	148.71	N. 15 31	70.61	-
	Moon I. <i>l. c.</i> - -	-	10 46 47.39	145.73	12 56	69.90	-
7	Moon I. <i>u. c.</i> (2.3)	-	11 15 39.07	142.94	N. 10 8	69.23	-
	Moon I. <i>l. c.</i> - -	-	11 43 59.31	140.52	7 11	68.65	-
8	Moon I. <i>u. c.</i> (3.4)	-	12 11 53.42	138.60	N. 4 8	68.21	-
	Moon I. <i>l. c.</i> - -	-	12 39 28.16	137.29	N. 1 2	67.90	-
9	Moon I. <i>u. c.</i> (4.4)	-	13 6 50.94	136.62	S. 2 4	67.76	-
	Moon I. <i>l. c.</i> - -	-	13 34 9.60	136.60	5 7	67.78	-
	α Virginis - - -	1	13 16 27.79	- -	S. 10 18	-	-
	ζ Virginis - - -	4	13 26 14.98	- -	N. 0 15	-	-
10	α Virginis - - -	1	13 16 27.76	- -	S. 10 18	-	-
	ζ Virginis - - -	4	13 26 14.96	- -	N. 0 15	-	-
	Moon I. <i>u. c.</i> (5.4)	-	14 1 31.71	137.19	S. 8 4	67.93	-
	Moon I. <i>l. c.</i> - -	-	14 29 4.37	138.34	10 54	68.20	-
	α Libræ - - - -	3	14 41 43.40	- -	15 21	-	-
11	ξ Libræ - - - -	5	14 47 47.29	- -	S. 10 44	-	-
	α Libræ - - - -	3	14 41 43.38	- -	S. 15 21	-	-
	ξ Libræ - - - -	5	14 47 47.27	- -	10 44	-	-
	Moon I. <i>u. c.</i> (6.5)	-	14 56 53.76	139.95	13 32	68.67	-
	Moon I. <i>l. c.</i> - -	-	15 25 4.54	141.89	S. 15 58	69.17	-

MOON-CULMINATING STARS. 439

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of ☾'s Sem. pass. mer.
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.		
Aug. 11	γ Libræ - - -	4.5	^h 15 ^m 26 ^s 16.20	- -	S. 14 14	- -	- -
	η Libræ - - -	4.5	15 34 46.05	- -	15 8	- -	- -
12	γ Libræ - - -	4.5	15 26 16.19	- -	S. 14 14	- -	- -
	η Libræ - - -	4.5	15 34 46.04	- -	15 8	- -	- -
	Moon I. u.c.	(7.5)	15 53 39.73	143.99	18 8	69.68	- -
	Moon I. l.c.	- -	16 22 40.07	146.05	20 2	70.18	- -
	α Scorpii - - -	1	16 19 15.91	- -	26 3	- -	- -
	m Scorpii - - -	5	16 32 0.47	- -	S. 17 25	- -	- -
13	α Scorpii - - -	1	16 19 15.89	- -	S. 26 3	- -	- -
	m Scorpii - - -	5	16 32 0.46	- -	17 25	- -	- -
	Moon I. u.c.	(8.5)	16 52 3.89	147.86	21 36	70.60	- -
	Moon I. l.c.	- -	17 21 46.84	149.20	22 51	70.90	- -
	θ Ophiuchi - - -	3.4	17 11 51.21	- -	24 49	- -	- -
	D Ophiuchi - - -	5	17 33 30.72	- -	S. 21 36	- -	- -
14	θ Ophiuchi - - -	3.4	17 11 51.20	- -	S. 24 49	- -	- -
	D Ophiuchi - - -	5	17 33 30.71	- -	21 36	- -	- -
	Moon I. u.c.	(9.6)	17 51 42.21	149.90	23 43	71.04	- -
	Moon I. l.c.	- -	18 21 41.26	149.80	24 14	70.97	- -
	λ Sagittarii - - -	4	18 17 45.70	- -	25 30	- -	- -
	φ Sagittarii - - -	4.5	18 35 19.28	- -	S. 27 9	- -	- -
15	λ Sagittarii - - -	4	18 17 45.69	- -	S. 25 30	- -	- -
	φ Sagittarii - - -	4.5	18 35 19.28	- -	27 9	- -	- -
	Moon I. u.c.	(10.6)	18 51 33.88	148.83	24 23	70.69	- -
	Moon I. l.c.	- -	19 21 9.74	147.01	24 10	70.21	- -
	h ² Sagittarii - - -	4.5	19 26 38.31	- -	S. 25 14	- -	- -
16	h ² Sagittarii - - -	4.5	19 26 38.31	- -	S. 25 14	- -	- -
	Moon I. u.c.	(11.7)	19 50 19.03	144.42	23 36	69.53	- -
	Moon I. l.c.	- -	20 18 53.44	141.22	22 42	68.69	- -
	α ² Capricorni - - -	3	20 8 52.63	- -	13 3	- -	- -
	ψ Capricorni - - -	4.5	20 36 17.94	- -	S. 25 52	- -	- -
17	α ² Capricorni - - -	3	20 8 52.63	- -	S. 13 3	- -	- -
	ψ Capricorni - - -	4.5	20 36 17.95	- -	25 52	- -	- -
	Moon I. u.c.	(12.7)	20 46 46.58	137.58	21 30	67.74	- -
	Moon I. l.c.	- -	21 13 54.50	133.71	20 2	66.73	- -
	ξ Capricorni - - -	4	21 17 13.16	- -	S. 23 7	- -	- -
18	ξ Capricorni - - -	4	21 17 13.17	- -	S. 23 7	- -	- -
	Moon I. u.c.	(13.7)	21 40 15.51	129.80	18 20	65.71	- -
	ι Aquarii - - -	4.5	21 57 30.29	- -	S. 14 40	- -	- -
19	ι Aquarii - - -	4.5	21 57 30.29	- -	S. 14 40	- -	- -
	Moon II. l.c.	- -	22 7 59.62	125.85	16 26	64.72	- -
	Moon II. u.c.	(14.8)	22 32 48.23	122.32	14 21	63.80	- -
	λ Aquarii - - -	4	22 43 59.27	- -	S. 8 28	- -	- -

440 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of C's Sen. pass. mer.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Declination.		
Aug. 19	χ Aquarii - - -	5.6	^h 23 ^m 8 ^s 16.44	- -	S. 8 38	- -	- -
20	λ Aquarii - - -	4	22 43 59.28	- -	S. 8 28	- -	- -
	χ Aquarii - - -	5.6	23 8 16.46	- -	8 38	- -	- -
	Moon II. <i>l. c.</i> - -	- -	22 56 56.69	119.16	12 8	62.95	- -
	Moon II. <i>u. c.</i> (15.8)	- -	23 20 29.79	116.44	9 48	62.22	- -
	n Piscium - - -	5.6	23 39 26.38	- -	3 41	- -	- -
	p Piscium - - -	5	23 50 12.50	- -	S. 4 29	- -	- -
21	n Piscium - - -	5.6	23 39 26.39	- -	S. 3 41	- -	- -
	p Piscium - - -	5	23 50 12.52	- -	4 29	- -	- -
	Moon II. <i>l. c.</i> - -	- -	23 43 33.22	114.22	7 23	61.63	- -
	Moon II. <i>u. c.</i> (16.8)	- -	0 6 13.13	112.53	4 55	61.19	- -
	13 Ceti - - - -	6	0 26 43.68	- -	S. 4 30	- -	- -
22	13 Ceti - - - -	6	0 26 43.70	- -	S. 4 30	- -	- -
	Moon II. <i>l. c.</i> - -	- -	0 28 36.11	111.39	S. 2 25	60.91	- -
	Moon II. <i>u. c.</i> (17.8)	- -	0 50 48.87	110.82	N. 0 7	60.78	- -
	μ Piscium - - *	5	1 21 31.30	- -	N. 5 17	- -	- -
23	μ Piscium - - *	5	1 21 31.32	- -	N. 5 17	- -	- -
	Moon II. <i>l. c.</i> - -	- -	1 12 58.37	110.85	2 38	60.81	- -
	Moon II. <i>u. c.</i> (18.9)	- -	1 35 11.67	111.46	5 7	61.02	- -
	ξ^1 Ceti - - - - *	5	2 4 14.40	- -	N. 8 4	- -	- -
24	ξ^1 Ceti - - - - *	5	2 4 14.43	- -	N. 8 4	- -	- -
	Moon II. <i>l. c.</i> - -	- -	1 57 35.82	112.66	7 33	61.38	- -
	Moon II. <i>u. c.</i> (19.9)	- -	2 20 17.90	114.45	9 56	61.90	- -
	λ Ceti - - - - *	5.6	2 50 50.55	- -	N. 8 14	- -	- -
25	λ Ceti - - - - *	5.6	2 50 50.58	- -	N. 8 14	- -	- -
	Moon II. <i>l. c.</i> - -	- -	2 43 24.86	116.81	12 13	62.56	- -
	Moon II. <i>u. c.</i> (20.9)	- -	3 7 3.55	119.73	14 23	63.37	- -
	ξ Tauri - - - *	4	3 18 12.25	- -	N. 9 9	- -	- -
26	ξ Tauri - - - *	4	3 18 12.28	- -	N. 9 9	- -	- -
	Moon II. <i>l. c.</i> - -	- -	3 31 20.33	123.15	16 26	64.31	- -
	Moon II. <i>u. c.</i> (22.0)	- -	3 56 20.97	127.03	18 19	65.34	- -
	α Tauri - - - -	1	4 26 25.18	- -	N. 16 10	- -	- -
27	α Tauri - - - -	1	4 26 25.21	- -	N. 16 10	- -	- -
	Moon II. <i>l. c.</i> - -	- -	4 22 10.34	131.25	20 0	66.44	- -
	Moon II. <i>u. c.</i> (23.0)	- -	4 48 51.89	135.70	21 28	67.58	- -
	β Tauri - - - -	2	5 15 49.10	- -	N. 28 28	- -	- -
28	β Tauri - - - -	2	5 15 49.13	- -	N. 28 28	- -	- -
	Moon II. <i>l. c.</i> - -	- -	5 16 27.27	140.19	22 41	68.71	- -
	Moon II. <i>u. c.</i> (24.0)	- -	5 44 55.80	144.52	23 37	69.79	- -
	μ Geminorum - -	3	6 12 55.61	- -	N. 22 35	- -	- -

MOON-CULMINATING STARS. 441

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Aug. 29	μ Geminorum - -	3	^h 6 ^m 12 ^s 55·64	- -	N. 22 35	- -
	Moon II. <i>l. c.</i> - -	- -	6 14 14·18	148·45	24 14	70·74
	Moon II. <i>u. c.</i> (25·1)	- -	6 44 16·24	151·77	24 29	71·53
	β Geminorum - -	2	7 35 9·15	- -	N. 28 25	- -
30	β Geminorum - -	2	7 35 9·17	- -	N. 28 25	- -
	Moon II. <i>l. c.</i> - -	- -	7 14 53·25	154·24	24 22	72·11
	Moon II. <i>u. c.</i> (26·1)	- -	7 45 54·29	155·76	N. 23 51	72·46
31	Moon II. <i>l. c.</i> - -	- -	8 17 7·46	156·26	N. 22 55	72·56
	Moon II. <i>u. c.</i> (27·1)	- -	8 48 20·78	155·81	21 36	72·43
Sept. 1	Moon II. <i>l. c.</i> - -	- -	9 19 23·58	154·54	N. 19 54	72·11
	Moon II. <i>u. c.</i> (28·2)	- -	9 50 7·28	152·67	17 50	71·64
2	Moon II. <i>l. c.</i> - -	- -	10 20 26·23	150·45	N. 15 26	71·10
3	Moon II. <i>u. c.</i> (29·2)	- -	10 50 17·51	148·11	N. 12 46	70·53
	Moon I. <i>l. c.</i> - -	- -	11 17 21·38	145·98	9 53	69·99
4	Moon I. <i>u. c.</i> (0·9)	- -	11 46 21·19	144·05	N. 6 49	69·53
	Moon I. <i>l. c.</i> - -	- -	12 15 0·20	142·54	3 39	69·19
5	Moon I. <i>u. c.</i> (2·0)	- -	12 43 24·16	141·55	N. 0 25	68·97
	Moon I. <i>l. c.</i> - -	- -	13 11 39·58	141·12	S. 2 48	68·90
6	α Virginis - - -	1	13 16 27·53	- -	S. 10 18	- -
	Moon I. <i>u. c.</i> (3·0)	- -	13 39 53·21	141·25	5 57	68·98
	Moon I. <i>l. c.</i> - -	- -	14 8 11·57	141·90	9 0	69·18
	κ Virginis - - -	4	14 4 3·41	- -	S. 9 30	- -
7	κ Virginis - - -	4	14 4 3·40	- -	S. 9 30	- -
	Moon I. <i>u. c.</i> (4·0)	- -	14 36 40·49	143·00	11 53	69·49
	Moon I. <i>l. c.</i> - -	- -	15 5 24·76	144·43	14 33	69·88
	α ² Libræ - - -	3	14 41 43·01	- -	15 21	- -
8	β Libræ - - -	2.3	15 8 5·67	- -	S. 8 46	- -
	α ² Libræ - - -	3	14 41 43·00	- -	S. 15 21	- -
	β Libræ - - -	2.3	15 8 5·66	- -	8 46	- -
	Moon I. <i>u. c.</i> (5·1)	- -	15 34 27·47	146·04	16 58	70·31
	Moon I. <i>l. c.</i> - -	- -	16 3 49·74	147·66	19 5	70·73
	δ Scorp̄ii - - -	3	15 50 32·68	- -	22 8	- -
9	α Scorp̄ii - - -	1	16 19 15·45	- -	S. 26 3	- -
	δ Scorp̄ii - - -	3	15 50 32·66	- -	S. 22 8	- -
	α Scorp̄ii - - -	1	16 19 15·44	- -	26 3	- -
	Moon I. <i>u. c.</i> (6·1)	- -	16 33 30·49	149·08	20 54	71·09
	Moon I. <i>l. c.</i> - -	- -	17 3 26·17	150·12	22 22	71·34
	A Ophiuchi - - -	4.5	17 5 10·30	- -	26 21	- -
	ρ Ophiuchi - - -	4.5	17 11 4·85	- -	S. 20 56	- -

442 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of C's Sc. pass. mer.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Declination.		
Sept. 10	A Ophiuchi - - -	4.5	^h 17 ^m 5 ^s 10.28	- -	S. 26 21	-	-
	ρ Ophiuchi - - -	4.5	17 11 4.83	- -	20 56	-	-
	Moon I. u.c. (7.1)	-	17 33 31.06	150.58	23 28	71.44	-
	Moon I. l.c. - -	-	18 3 37.36	150.34	24 11	71.46	-
	μ ¹ Sagittarii - - -	3.4	18 3 52.02	- -	S. 21 6	-	-
11	μ ¹ Sagittarii - - -	3.4	18 3 52.00	- -	S. 21 6	-	-
	Moon I. u.c. (8.2)	-	18 33 36.18	149.33	24 33	71.08	-
	Moon I. l.c. - -	-	19 3 18.14	147.53	24 32	70.60	-
	π Sagittarii - - -	4.5	18 59 55.26	- -	21 17	-	-
	h ⁸ Sagittarii - - -	4.5	19 26 38.06	- -	S. 25 14	-	-
12	π Sagittarii - - -	4.5	18 59 55.25	- -	S. 21 17	-	-
	h ⁸ Sagittarii - - -	4.5	19 26 38.05	- -	25 14	-	-
	Moon I. u.c. (9.2)	-	19 32 34.18	145.03	24 9	69.94	-
	Moon I. l.c. - -	-	20 1 16.46	141.93	23 27	69.12	-
	c Sagittarii - - -	4.5	19 52 28.79	- -	28 10	-	-
	α ² Capricorni - - -	3	20 8 52.46	- -	S. 13 3	-	-
13	c Sagittarii - - -	4.5	19 52 28.78	- -	S. 28 10	-	-
	α ² Capricorni - - -	3	20 8 52.45	- -	13 3	-	-
	Moon I. u.c. (10.3)	-	20 29 18.95	138.43	22 25	68.49	-
	Moon I. l.c. - -	-	20 56 37.71	134.67	21 7	67.79	-
	η Capricorni - - -	5	20 54 59.38	- -	20 30	-	-
	χ ¹ Capricorni - - -	5.6	20 59 4.83	- -	S. 21 51	-	-
14	η Capricorni - - -	5	20 54 59.37	- -	S. 20 30	-	-
	χ ¹ Capricorni - - -	5.6	20 59 4.83	- -	21 51	-	-
	Moon I. u.c. (11.3)	-	21 23 10.76	130.84	19 34	66.43	-
	Moon I. l.c. - -	-	21 48 58.26	127.10	17 47	65.43	-
	δ Capricorni - - -	3.4	21 37 54.60	- -	16 53	-	-
	ι Aquarii - - -	4.5	21 57 30.37	- -	S. 14 40	-	-
15	δ Capricorni - - -	3.4	21 37 54.59	- -	S. 16 53	-	-
	ι Aquarii - - -	4.5	21 57 30.36	- -	14 40	-	-
	Moon I. u.c. (12.3)	-	22 14 2.01	123.57	15 48	64.47	-
	Moon I. l.c. - -	-	22 38 25.24	120.36	13 40	63.28	-
	δ Aquarii - - -	3	22 45 52.65	- -	S. 16 42	-	-
16	δ Aquarii - - -	3	22 45 52.65	- -	S. 16 42	-	-
	Moon I. u.c. (13.4)	-	23 2 12.17	117.54	11 25	62.30	-
	Moon I. l.c. - -	-	23 25 27.89	115.16	9 2	61.84	-
	n Piscium - - -	5.6	23 39 26.69	- -	S. 3 41	-	-
17	n Piscium - - -	5.6	23 39 26.69	- -	S. 3 41	-	-
	Moon II. u.c. (14.4)	-	23 50 20.54	113.19	6 35	61.32	-
	n Ceti - - -	6	0 21 36.47	- -	S. 4 53	-	-
18	n Ceti - - -	6	0 21 36.49	- -	S. 4 53	-	-
	Moon II. l.c. - -	-	0 12 50.12	111.83	S. 4 5	60.94	-

MOON-CULMINATING STARS. 443

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. Time of ☾'s Sem. pass. mer.
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.		
Sept. 18	Moon II. v.c.	(15.4)	^h 0 ^m 35 ^s 48	110.98	S. 1 33		60.72
	f Piscium - - -	6	1 9 16.65	- -	N. 2 44		- -
19	f Piscium - - -	6	1 9 16.67	- -	N. 2 44		- -
	Moon II. l.c.	- -	0 57 15.84	110.67	0 59		60.65
	Moon II. v.c.	(16.4)	1 19 24.69	110.89	3 31		60.73
	ξ Piscium - - -	5.6	1 45 0.43	- -	N. 2 22		- -
20	ξ Piscium - - -	5.6	1 45 0.45	- -	N. 2 22		- -
	Moon II. l.c.	- -	1 41 39.39	111.65	6 1		60.97
	Moon II. v.c.	(17.5)	2 4 6.32	112.93	8 27		61.36
	μ Ceti - - - *	4	2 36 0.80	- -	N. 9 25		- -
21	μ Ceti - - - *	4	2 36 0.82	- -	N. 9 25		- -
	Moon II. l.c.	- -	2 26 51.74	114.73	10 49		61.90
	Moon II. v.c.	(18.5)	2 50 1.81	117.03	13 5		62.56
	ξ Tauri - - - *	4	3 18 12.98	- -	N. 9 9		- -
22	ξ Tauri - - - *	4	3 18 13.01	- -	N. 9 9		- -
	Moon II. l.c.	- -	3 13 42.29	119.79	15 13		63.35
	Moon II. v.c.	(19.5)	3 37 58.49	122.98	17 13		64.24
	γ Tauri - - - -	3.4	4 10 23.07	- -	15 13		- -
	α Tauri - - - -	1	4 26 26.00	- -	N. 16 10		- -
23	γ Tauri - - - -	3.4	4 10 23.10	- -	N. 15 13		- -
	α Tauri - - - -	1	4 26 26.03	- -	16 10		- -
	Moon II. l.c.	- -	4 2 55.11	126.51	19 2		65.21
	Moon II. v.c.	(20.6)	4 28 35.84	130.31	20 39		66.23
	ι Tauri - - - -	4.5	4 53 12.66	- -	21 21		- -
24	β Tauri - - - -	2	5 15 50.00	- -	N. 28 28		- -
	ι Tauri - - - -	4.5	4 53 12.69	- -	N. 21 21		- -
	β Tauri - - - -	2	5 15 50.04	- -	28 28		- -
	Moon II. l.c.	- -	4 55 3.01	134.24	22 2		67.26
	Moon II. v.c.	(21.6)	5 22 17.42	138.15	23 10		68.28
25	C Tauri - - - -	4.5	5 42 55.47	- -	N. 27 34		- -
	C Tauri - - - -	4.5	5 42 55.47	- -	N. 27 34		- -
	Moon II. l.c.	- -	5 50 17.81	141.87	24 1		69.22
	Moon II. v.c.	(22.6)	6 19 0.91	145.23	24 33		70.06
26	ξ Geminorum - -	4	6 54 16.69	- -	N. 20 48		- -
	ξ Geminorum - -	4	6 54 16.72	- -	N. 20 48		- -
	Moon II. l.c.	- -	6 48 21.13	148.04	24 44		70.75
	Moon II. v.c.	(23.7)	7 18 11.10	150.16	24 34		71.26
27	β Geminorum - -	2	7 35 9.97	- -	N. 28 25		- -
	β Geminorum - -	2	7 35 10.00	- -	N. 28 25		- -
	Moon II. l.c.	- -	7 48 21.99	151.52	24 1		71.58
	Moon II. v.c.	(24.7)	8 18 44.34	152.08	N. 23 4		71.69

444 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of G's R. A. in 1 hour of Long.	Declination.	Std. Time of G's Sun. pass. mer.
Sept. 28	Moon II. <i>l. c.</i>	- -	^h ^m ^s 8 49 8·91	151·90	N. 21 45	71 43
	Moon II. <i>v. c.</i>	(25·7)	9 19 27·62	151·12	20 3	71 41
	α Leonis - - *	1	9 59 31·87	- -	N. 12 47	- -
29	α Leonis - - *	1	9 59 31·89	- -	N. 12 47	- -
	Moon II. <i>l. c.</i>	- -	9 49 34·16	149·91	18 0	71 08
	Moon II. <i>v. c.</i>	(26·8)	10 19 24·48	148·46	N. 15 38	70 71
30	Moon II. <i>l. c.</i>	- -	10 48 56·99	146·97	N. 12 59	70 34
	Moon II. <i>v. c.</i>	(27·8)	11 18 12·37	145·63	10 4	69 94
Oct. 1	Moon II. <i>l. c.</i>	- -	11 47 13·27	144·59	N. 6 59	69 70
	Moon II. <i>v. c.</i>	(28·9)	12 16 4·17	143·97	3 45	69 55
2	Moon I. <i>l. c.</i>	- -	12 42 31·36	143·82	N. 0 27	69 53
3	Moon I. <i>v. c.</i>	(0·6)	13 11 18·87	144·18	S. 2 52	69 45
	Moon I. <i>l. c.</i>	- -	13 40 13·75	145·05	6 8	69 39
4	Moon I. <i>v. c.</i>	(1·6)	14 9 21·82	146·37	S. 9 17	70 26
	Moon I. <i>l. c.</i>	- -	14 38 47·92	148·03	12 17	70 72
5	α ² Libræ - - -	3	14 41 42·75	- -	S. 15 21	- -
	Moon I. <i>v. c.</i>	(2·6)	15 8 35·28	149·89	15 2	71 23
	Moon I. <i>l. c.</i>	- -	15 38 45·28	151·76	17 32	71 73
	γ Libræ - - -	4·5	15 26 15·45	- -	S. 14 14	- -
6	γ Libræ - - -	4·5	15 26 15·45	- -	S. 14 14	- -
	Moon I. <i>v. c.</i>	(3·7)	16 9 16·72	153·43	19 42	72 18
	Moon I. <i>l. c.</i>	- -	16 40 5·81	154·66	21 30	72 32
	α Scorpii - - -	1	16 19 15·00	- -	26 3	- -
	m Scorpii - - -	5	16 31 59·61	- -	S. 17 25	- -
7	α Scorpii - - -	1	16 19 14·99	- -	S. 26 3	- -
	m Scorpii - - -	5	16 31 59·60	- -	17 25	- -
	Moon I. <i>v. c.</i>	(4·7)	17 11 6·08	155·26	22 56	72 69
	Moon I. <i>l. c.</i>	- -	17 42 8·81	155·05	23 58	72 66
	D Ophiuchi - - -	5	17 33 29·84	- -	21 36	- -
8	p Sagittarii - - -	5	17 37 8·00	- -	S. 27 45	- -
	D Ophiuchi - - -	5	17 33 29·82	- -	S. 21 36	- -
	p Sagittarii - - -	5	17 37 7·98	- -	27 45	- -
	Moon I. <i>v. c.</i>	(5·8)	18 13 3·79	153·95	24 36	72 29
	Moon I. <i>l. c.</i>	- -	18 43 40·17	151·96	24 50	71 91
9	φ Sagittarii - - -	4·5	18 35 18·43	- -	27 9	- -
	σ Sagittarii - - -	3	18 44 59·58	- -	S. 26 30	- -
	Moon I. <i>v. c.</i>	(6·8)	19 13 47·61	149·15	S. 24 41	71 21

MOON-CULMINATING STARS. 445

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Oct. 9	<i>Moon I.</i> <i>l. c.</i>	- -	^h ^m ^s 19 43 17·14	^s 145·67	[°] ['] S. 24 10	^s 70·33
	<i>c</i> Sagittarii - - -	4.5	19 52 28·35	- -	28 10	- -
	α^5 Capricorni - - -	3	20 8 52·09	- -	S. 13 3	- -
10	<i>c</i> Sagittarii - - -	4.5	19 52 28·33	- -	S. 28 10	- -
	α^5 Capricorni - - -	3	20 8 52·07	- -	13 3	- -
	<i>Moon I.</i> <i>u. c.</i> (7·8)	- -	20 12 1·90	141·73	23 20	69·31
	<i>Moon I.</i> <i>l. c.</i>	- -	20 39 57·46	137·51	22 10	68·21
	ψ Capricorni - - -	4.5	20 36 17·46	- -	25 52	- -
	<i>m</i> Capricorni - - -	6	20 43 18·11	- -	S. 24 24	- -
11	ψ Capricorni - - -	4.5	20 36 17·44	- -	S. 25 52	- -
	<i>m</i> Capricorni - - -	6	20 43 18·10	- -	24 24	- -
	<i>Moon I.</i> <i>u. c.</i> (8·9)	- -	21 7 1·85	133·23	20 45	67·07
	<i>Moon I.</i> <i>l. c.</i>	- -	21 33 15·39	129·06	19 5	65·94
	κ Capricorni - - -	5	21 33 25·14	- -	19 37	- -
	δ Capricorni - - -	3.4	21 37 54·36	- -	S. 16 53	- -
12	κ Capricorni - - -	5	21 33 25·12	- -	S. 19 37	- -
	δ Capricorni - - -	3.4	21 37 54·35	- -	16 53	- -
	<i>Moon I.</i> <i>u. c.</i> (9·9)	- -	21 58 40·26	125·14	17 13	64·86
	<i>Moon I.</i> <i>l. c.</i>	- -	22 23 20·11	121·57	15 10	63·87
	σ Aquarii - - -	5	22 21 53·73	- -	S. 11 31	- -
	σ Aquarii - - -	5	22 21 53·72	- -	S. 11 31	- -
13	<i>Moon I.</i> <i>u. c.</i> (10·9)	- -	22 47 19·71	118·44	12 59	62·98
	<i>Moon I.</i> <i>l. c.</i>	- -	23 10 44·59	115·79	10 40	62·21
	ψ^1 Aquarii - - -	5.6	23 7 13·89	- -	9 59	- -
	ψ^2 Aquarii - - -	5	23 10 21·88	- -	S. 10 31	- -
	ψ^1 Aquarii - - -	5.6	23 7 13·89	- -	S. 9 59	- -
	ψ^2 Aquarii - - -	5	23 10 21·87	- -	10 31	- -
14	<i>Moon I.</i> <i>u. c.</i> (12·0)	- -	23 33 40·71	113·66	8 15	61·59
	<i>Moon I.</i> <i>l. c.</i>	- -	23 56 14·44	112·05	5 46	61·11
	<i>r</i> Piscium - - -	4.5	23 53 29·37	- -	6 56	- -
	<i>s</i> Piscium - - -	5	23 56 52·87	- -	S. 6 38	- -
	<i>r</i> Piscium - - -	4.5	23 53 29·37	- -	S. 6 56	- -
	<i>s</i> Piscium - - -	5	23 56 52·86	- -	6 38	- -
15	<i>Moon I.</i> <i>u. c.</i> (13·0)	- -	0 18 32·14	110·99	3 15	60·80
	<i>Moon I.</i> <i>l. c.</i>	- -	0 40 40·27	110·46	0 41	60·63
	<i>m</i> Ceti - - -	5	0 44 34·35	- -	S. 2 3	- -
	<i>m</i> Ceti - - -	5	0 44 34·36	- -	S. 2 3	- -
	<i>Moon I.</i> <i>u. c.</i> (14·0)	- -	1 2 45·26	110·46	N. 1 53	60·62
	<i>Moon I.</i> <i>l. c.</i>	- -	1 24 53·49	111·00	4 25	60·77
16	ν Piscium - - *	5	1 32 50·68	- -	N. 4 39	- -
	ν Piscium - - *	5	1 32 50·69	- -	N. 4 39	- -
	<i>Moon II.</i> <i>u. c.</i> (15·0)	- -	1 49 13·33	112·11	N. 6 55	61·07

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Std. Time of ☾'s Set- ting.
Oct. 17	ξ Ceti - - - *	5	2 19 23.22	- -	N. 7 43	- -
18	ξ Ceti - - - *	5	2 19 23.23	- -	N. 7 43	- -
	Moon II. <i>l. c.</i>	- -	2 11 47.52	113.67	9 22	61.52
	Moon II. <i>u. c.</i>	(16.1)	2 34 43.30	115.71	11 43	62.10
	λ Ceti - - - *	5.6	2 50 51.78	- -	8 14	- -
	ξ Tauri - - - *	4	3 18 13.56	- -	N. 9 9	- -
19	λ Ceti - - - *	5.6	2 50 51.79	- -	N. 8 14	- -
	ξ Tauri - - - *	4	3 18 13.57	- -	9 9	- -
	Moon II. <i>l. c.</i>	- -	2 58 6.15	118.17	13 58	62.80
	Moon II. <i>u. c.</i>	(17.1)	3 22 1.01	121.03	16 5	63.60
	λ Tauri - - - *	4	3 51 32.07	- -	N. 12 1	- -
20	λ Tauri - - - *	4	3 51 32.09	- -	N. 12 1	- -
	Moon II. <i>l. c.</i>	- -	3 46 32.08	124.20	18 2	64.48
	Moon II. <i>u. c.</i>	(18.1)	4 11 42.72	127.60	19 48	65.42
	α Tauri - - - -	1	4 26 26.74	- -	N. 16 10	- -
21	α Tauri - - - -	1	4 26 26.76	- -	N. 16 10	- -
	Moon II. <i>l. c.</i>	- -	4 37 34.95	131.12	21 22	66.38
	Moon II. <i>u. c.</i>	(19.2)	5 4 9.42	134.62	22 40	67.32
	β Tauri - - - -	2	5 15 50.89	- -	N. 28 28	- -
22	β Tauri - - - -	2	5 15 50.92	- -	N. 28 28	- -
	Moon II. <i>l. c.</i>	- -	5 31 25.08	137.95	23 43	68.21
	Moon II. <i>u. c.</i>	(20.2)	5 59 18.95	140.96	24 27	69.00
	ε Geminorum - -	3	6 33 45.22	- -	N. 25 17	- -
23	ε Geminorum - -	3	6 33 45.25	- -	N. 25 17	- -
	Moon II. <i>l. c.</i>	- -	6 27 46.29	143.50	24 53	69.67
	Moon II. <i>u. c.</i>	(21.2)	6 56 40.65	145.45	24 58	70.17
	β Geminorum - -	2	7 35 10.88	- -	N. 28 25	- -
24	β Geminorum - -	2	7 35 10.91	- -	N. 28 25	- -
	Moon II. <i>l. c.</i>	- -	7 25 54.45	146.73	24 42	70.50
	Moon II. <i>u. c.</i>	(22.3)	7 55 19.53	147.33	24 4	70.65
	δ Cancri - - - -	4.5	8 35 16.07	- -	N. 18 46	- -
25	δ Cancri - - - -	4.5	8 35 16.10	- -	N. 18 46	- -
	Moon II. <i>l. c.</i>	- -	8 24 47.77	147.28	23 4	70.64
	Moon II. <i>u. c.</i>	(23.3)	8 54 12.04	146.69	21 43	70.48
	λ Leonis - - - -	4.5	9 22 15.55	- -	N. 23 42	- -
26	λ Leonis - - - -	4.5	9 22 15.58	- -	N. 23 42	- -
	Moon II. <i>l. c.</i>	- -	9 23 26.76	145.70	20 1	70.22
	Moon II. <i>u. c.</i>	(24.4)	9 52 28.02	144.50	18 0	69.89
	α Leonis - - - *	1	9 59 32.55	- -	N. 12 47	- -
27	α Leonis - - - *	1	9 59 32.58	- -	N. 12 47	- -

MOON-CULMINATING STARS. 447

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
Oct. 27	Moon II. <i>l. c.</i>	- -	^h 10 ^m 21 ^s 14·52	143·26	N. 15° 40'	69·56
	Moon II. <i>u. c.</i>	(25·4)	10 49 46·74	142·15	13 4	69·25
28	Moon II. <i>l. c.</i>	- -	11 18 7·29	141·34	N. 10 14	69·02
	Moon II. <i>u. c.</i>	(26·4)	11 46 20·45	140·94	7 12	68·89
29	Moon II. <i>l. c.</i>	- -	12 14 31·82	141·05	N. 4 1	68·90
	Moon II. <i>u. c.</i>	(27·5)	12 42 47·91	141·73	N. 0 45	69·05
30	Moon II. <i>l. c.</i>	- -	13 11 15·76	143·01	S. 2 34	69·35
	Moon II. <i>u. c.</i>	(28·5)	13 40 2·37	144·85	5 51	69·81
31	Moon II. <i>l. c.</i>	- -	14 9 14·13	147·19	S. 9 4	70·39
	Moon I. <i>u. c.</i>	(0·2)	14 36 34·14	149·77	12 8	71·08
Nov. 1	Moon I. <i>l. c.</i>	- -	15 6 48·58	152·65	S. 14 59	71·81
2	Moon I. <i>u. c.</i>	(1·2)	15 37 37·59	155·49	S. 17 34	72·54
	Moon I. <i>l. c.</i>	- -	16 8 58·97	158·00	19 49	73·19
3	Moon I. <i>u. c.</i>	(2·2)	16 40 47·07	159·88	S. 21 42	73·68
	Moon I. <i>l. c.</i>	- -	17 12 52·60	160·87	23 11	73·96
4	Moon I. <i>u. c.</i>	(3·3)	17 45 3·55	160·75	S. 24 14	73·97
	Moon I. <i>l. c.</i>	- -	18 17 5·96	159·44	24 51	73·69
5	Moon I. <i>u. c.</i>	(4·3)	18 48 45·46	156·95	S. 25 2	73·12
	Moon I. <i>l. c.</i>	- -	19 19 48·75	153·44	24 49	72·29
χ ¹ Sagittarii	- -	6	19 15 11·43	- -	24 49	- -
	h ² Sagittarii	4·5	19 26 37·14	- -	S. 25 14	- -
6	χ ¹ Sagittarii	- -	19 15 11·41	- -	S. 24 49	- -
	h ² Sagittarii	4·5	19 26 37·13	- -	25 14	- -
Moon I.	<i>u. c.</i>	(5·4)	19 50 4·92	149·14	24 13	71·25
	<i>l. c.</i>	- -	20 19 26·11	144·33	23 16	70·05
α ² Capricorni	- -	3	20 8 51·65	- -	13 3	- -
	ψ Capricorni	4·5	20 36 17·01	- -	S. 25 52	- -
7	α ² Capricorni	- -	20 8 51·64	- -	S. 13 3	- -
	ψ Capricorni	4·5	20 36 16·99	- -	25 52	- -
Moon I.	<i>u. c.</i>	(6·4)	20 47 47·90	139·29	22 0	68·78
	<i>l. c.</i>	- -	21 15 9·08	134·27	20 28	67·48
ζ Capricorni	- -	4	21 17 12·44	- -	23 7	- -
	ε Capricorni	5	21 27 48·51	- -	S. 20 12	- -
8	ζ Capricorni	- -	21 17 12·43	- -	S. 23 7	- -
	ε Capricorni	5	21 27 48·50	- -	20 12	- -
Moon I.	<i>u. c.</i>	(7·4)	21 41 31·18	129·47	18 43	66·22
	<i>l. c.</i>	- -	22 6 57·97	125·07	16 45	65·04
D Aquarii	- -	6	22 10 7·65	- -	S. 14 8	- -

448 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of G's R. A. in 1 hour of Long.	Declination.	Sid. Time of G's Sun pass. mer.
Nov. 8	σ Aquarii - - -	5	^h 22 ^m 21 ^s 53·42	- -	S. 11° 31'	- -
9	D Aquarii - - -	6	22 10 7·64	- -	S. 14 8	- -
	σ Aquarii - - -	5	22 21 53·41	- -	11 31	- -
	Moon I. v.c. (8·5)		22 31 34·65	121·14	14 37	63·95
	Moon I. l.c. - -		22 55 27·51	117·77	12 22	63·01
	χ Aquarii - - -	5.6	23 8 16·43	- -	S. 8 38	- -
10	χ Aquarii - - -	5.6	23 8 16·41	- -	S. 8 38	- -
	Moon I. v.c. (9·5)		23 18 43·48	115·00	10 0	62·21
	Moon I. l.c. - -		23 41 29·87	112·84	7 33	61·57
	n Piscium - - -	5.6	23 39 26·55	- -	S. 3 41	- -
11	n Piscium - - -	5.6	23 39 26·55	- -	S. 3 41	- -
	Moon I. v.c. (10·5)		0 3 53·98	111·29	5 2	61·11
	Moon I. l.c. - -		0 26 3·21	110·35	2 29	60·81
	13 Ceti - - - -	6	0 26 44·20	- -	4 30	- -
	m Ceti - - - -	5	0 44 34·33	- -	S. 2 3	- -
12	13 Ceti - - - -	6	0 26 44·19	- -	S. 4 30	- -
	m Ceti - - - -	5	0 44 34·33	- -	S. 2 3	- -
	Moon I. v.c. (11·6)		0 48 4·86	110·02	N. 0 5	60·68
	Moon I. l.c. - -		1 10 6·08	110·28	2 39	60·72
	f Piscium - - -	6	1 9 16·96	- -	2 44	- -
	μ Piscium - - *	5	1 21 32·21	- -	N. 5 17	- -
13	f Piscium - - -	6	1 9 16·96	- -	N. 2 44	- -
	μ Piscium - - *	5	1 21 32·21	- -	5 17	- -
	Moon I. v.c. (12·6)		1 32 13·78	111·10	5 12	60·92
	Moon I. l.c. - -		1 54 34·69	112·48	7 42	61·28
	ξ Piscium - - -	5.6	1 45 0·91	- -	2 22	- -
	α Piscium - - -	5	1 53 30·58	- -	N. 1 58	- -
14	ξ Piscium - - -	5.6	1 45 0·91	- -	N. 2 22	- -
	α Piscium - - -	5	1 53 30·58	- -	1 58	- -
	Moon I. v.c. (13·6)		2 17 15·25	114·37	10 8	61·79
	Moon I. l.c. - -		2 40 21·51	116·75	12 29	62·44
	μ Ceti - - - *	4	2 36 1·55	- -	9 25	- -
	λ Ceti - - - *	5.6	2 50 52·08	- -	N. 8 14	- -
15	μ Ceti - - - *	4	2 36 1·56	- -	N. 9 25	- -
	λ Ceti - - - *	5.6	2 50 52·08	- -	8 14	- -
	Moon I. v.c. (14·6)		3 3 58·95	119·55	14 43	63·19
	Moon II. l.c. - -		3 30 20·33	122·87	16 49	64·05
	ξ Tauri - - - *	4	3 18 13·94	- -	9 9	- -
	e Tauri - - - *	6	3 39 12·85	- -	N. 10 38	- -
16	ξ Tauri - - - *	4	3 18 13·95	- -	N. 9 9	- -
	e Tauri - - - *	6	3 39 12·87	- -	10 38	- -
	Moon II. v.c. (15·7)		3 55 15·17	126·31	N. 18 44	64·97

MOON-CULMINATING STARS. 449

34.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of G's R. A. in 1 hour of Long.	Declination.	Sid. Time of G's Sem. pass. mer.
			^h ^m ^s	^s	[°] ['] ["]	^s
16	θ ¹ Tauri - - - -	5	4 19 9.05	- -	N. 15 35	- -
	α Tauri - - - -	1	4 26 27.29	- -	16 10	- -
17	θ ¹ Tauri - - - -	5	4 19 9.06	- -	N. 15 35	- -
	α Tauri - - - -	1	4 26 27.31	- -	16 10	- -
	Moon II. l. c. - -	- -	4 20 52.30	129.89	20 27	65.93
	Moon II. u. c. (16.7)	- -	4 47 12.40	133.46	21 57	66.88
	β Tauri - - - -	2	5 15 51.62	- -	N. 28 28	- -
18	β Tauri - - - -	2	5 15 51.64	- -	N. 28 28	- -
	Moon II. l. c. - -	- -	5 14 14.55	136.86	23 11	67.79
	Moon II. u. c. (17.7)	- -	5 41 55.64	139.92	24 8	68.60
	η Geminorum - -	4.5	6 4 54.58	- -	22 33	- -
	μ Geminorum - -	3	6 12 58.15	- -	N. 22 35	- -
19	η Geminorum - -	4.5	6 4 54.60	- -	N. 22 33	- -
	μ Geminorum - -	3	6 12 58.18	- -	22 35	- -
	Moon II. l. c. - -	- -	6 10 10.50	142.46	24 46	69.28
	Moon II. u. c. (18.8)	- -	6 38 52.09	144.35	25 5	69.79
	δ Geminorum - -	3.4	7 10 15.12	- -	22 17	- -
	β Geminorum - -	2	7 35 11.82	- -	N. 28 25	- -
20	δ Geminorum - -	3.4	7 10 15.15	- -	N. 22 17	- -
	β Geminorum - -	2	7 35 11.85	- -	28 25	- -
	Moon II. l. c. - -	- -	7 7 52.07	145.51	25 2	70.12
	Moon II. u. c. (19.8)	- -	7 37 1.30	145.90	24 38	70.26
	λ Cancri - - - -	6	8 10 41.70	- -	24 32	- -
	θ Cancri - - - -	5.6	8 22 9.69	- -	N. 18 39	- -
21	λ Cancri - - - -	6	8 10 41.73	- -	N. 24 32	- -
	θ Cancri - - - -	5.6	8 22 9.73	- -	18 39	- -
	Moon II. l. c. - -	- -	8 6 10.76	145.56	23 53	70.20
	Moon II. u. c. (20.9)	- -	8 35 12.38	144.61	22 47	69.99
	λ Leonis - - - -	4.5	9 22 16.47	- -	N. 23 42	- -
22	λ Leonis - - - -	4.5	9 22 16.50	- -	N. 23 42	- -
	Moon II. l. c. - -	- -	9 3 59.66	143.20	21 20	69.65
	Moon II. u. c. (21.9)	- -	9 32 28.21	141.52	19 34	69.24
	α Leonis - - - *	1	9 59 33.40	- -	N. 12 47	- -
23	α Leonis - - - *	1	9 59 33.44	- -	N. 12 47	- -
	Moon II. l. c. - -	- -	10 0 35.93	139.77	17 31	68.79
	Moon II. u. c. (22.9)	- -	10 28 23.08	138.13	15 11	68.37
	χ Leonis - - - *	4.5	10 56 28.55	- -	N. 8 14	- -
24	χ Leonis - - - *	4.5	10 56 28.58	- -	N. 8 14	- -
	Moon II. l. c. - -	- -	10 55 52.13	136.78	12 37	68.01
	Moon II. u. c. (24.0)	- -	11 23 7.38	135.85	9 50	67.75
	β Virginis - - -	3.4	11 42 4.35	- -	2 42	- -
	π Virginis - - - *	5	11 52 22.42	- -	N. 7 32	- -

450 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.				Sid. T. of ☾'s passage
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	☾'s passage	
Nov. 25	β Virginis - - -	3.4	^h 11 ^m 42 ^s 4.38	- -	N. 2 42	-	-
	π Virginis - - *	5	11 52 22.45	- -	7 32	-	-
	Moon II. <i>l. c.</i> - -	- -	11 50 14.61	135.46	6 53	67	67
	Moon II. <i>u. c.</i> (25.0)	- -	12 17 20.90	135.70	N. 3 48	67	67
	γ ¹ Virginis - - -	4	12 33 16.09	- -	S. 0 32	-	-
26	γ ¹ Virginis - - -	4	12 33 16.11	- -	S. 0 32	-	-
	Moon II. <i>l. c.</i> - -	- -	12 44 34.07	136.62	N. 0 38	67	67
	Moon II. <i>u. c.</i> (26.0)	- -	13 12 2.51	138.24	S. 2 35	68	68
	α Virginis - - -	1	13 16 28.24	- -	10 18	-	-
27	α Virginis - - -	1	13 16 28.26	- -	S. 10 18	-	-
	Moon II. <i>l. c.</i> - -	- -	13 39 54.52	140.55	5 47	68	68
	Moon II. <i>u. c.</i> (27.1)	- -	14 8 18.06	143.48	S. 8 55	69	69
28	Moon II. <i>l. c.</i> - -	- -	14 37 19.98	146.92	S. 11 56	70	70
	Moon II. <i>u. c.</i> (28.1)	- -	15 7 5.36	150.69	14 47	71	71
29	Moon II. <i>l. c.</i> - -	- -	15 37 36.67	154.53	S. 17 22	72	72
	Moon II. <i>u. c.</i> (29.1)	- -	16 8 53.04	158.13	19 40	73	73
30	Moon I. <i>l. c.</i> - -	- -	16 38 21.76	161.02	S. 21 36	73	73
Dec. 1	Moon I. <i>u. c.</i> (0.7)	- -	17 10 47.68	163.11	S. 23 9	74	74
	Moon I. <i>l. c.</i> - -	- -	17 43 31.60	163.96	24 15	74	74
2	Moon I. <i>u. c.</i> (1.8)	- -	18 16 17.11	163.37	S. 24 55	74	74
	Moon I. <i>l. c.</i> - -	- -	18 48 46.82	161.33	25 7	74	74
3	Moon I. <i>u. c.</i> (2.8)	- -	19 20 43.78	157.96	S. 24 53	73	73
	Moon I. <i>l. c.</i> - -	- -	19 51 53.56	153.52	24 15	72	72
	c Sagittarii - - -	4.5	19 52 27.57	- -	28 10	-	-
	α ² Capricorni - - -	3	20 8 51.36	- -	S. 13 3	-	-
4	c Sagittarii - - -	4.5	19 52 27.57	- -	S. 28 10	-	-
	α ² Capricorni - - -	3	20 8 51.36	- -	13 3	-	-
	Moon I. <i>u. c.</i> (3.9)	- -	20 22 5.39	148.36	23 15	70	70
	Moon I. <i>l. c.</i> - -	- -	20 51 12.75	142.83	21 55	69	69
	η Capricorni - - -	5	20 54 58.29	- -	20 30	-	-
	χ ¹ Capricorni - - -	5.6	20 59 3.74	- -	S. 21 51	-	-
5	η Capricorni - - -	5	20 54 58.28	- -	S. 20 30	-	-
	χ ¹ Capricorni - - -	5.6	20 59 3.73	- -	21 51	-	-
	Moon I. <i>u. c.</i> (4.9)	- -	21 19 13.18	137.26	20 19	68	68
	Moon I. <i>l. c.</i> - -	- -	21 46 7.77	131.90	18 28	66	66
	δ Capricorni - - -	3.4	21 37 53.63	- -	16 53	-	-
	μ Capricorni - - -	5	21 44 15.88	- -	S. 14 20	-	-
6	δ Capricorni - - -	3.4	21 37 53.62	- -	S. 16 53	-	-
	μ Capricorni - - -	5	21 44 15.87	- -	S. 14 20	-	-

MOON-CULMINATING STARS. 451

34.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
c. 6	Moon I. u.c.	(5.9)	^h 22 ^m 12 ^s 0.33	^s 126.95	[°] S. 16 26	^s 65.54
	Moon I. l.c.	-	22 36 56.62	122.54	14 14	64.37
	♊ Aquarii - - -	5.6	22 40 49.62	-	14 28	-
	♋ Aquarii - - -	3	22 45 51.93	-	S. 16 42	-
7	♊ Aquarii - - -	5.6	22 40 49.61	-	S. 14 28	-
	♋ Aquarii - - -	3	22 45 51.92	-	16 42	-
	Moon I. u.c.	(7.0)	23 1 3.65	118.75	11 54	63.35
	Moon I. l.c.	-	23 24 29.26	115.63	9 29	62.48
	♎ Aquarii - - -	6	23 10 49.30	-	6 2	-
	♏ Piscium - - -	5.6	23 39 26.28	-	S. 3 41	-
8	♎ Aquarii - - -	6	23 10 49.29	-	S. 6 2	-
	♏ Piscium - - -	5.6	23 39 26.27	-	3 41	-
	Moon I. u.c.	(8.0)	23 47 21.57	113.20	6 59	61.79
	Moon I. l.c.	-	0 9 48.83	111.46	4 27	61.29
	♏ Piscium - - -	5	23 56 52.46	-	6 38	-
	♐ Ceti - - -	6	0 21 36.31	-	S. 4 53	-
9	♏ Piscium - - -	5	23 56 52.45	-	S. 6 38	-
	♐ Ceti - - -	6	0 21 36.30	-	4 53	-
	Moon I. u.c.	(9.0)	0 31 59.33	110.40	S. 1 52	60.97
	Moon I. l.c.	-	0 54 1.15	110.01	N. 0 42	60.84
	♐ Ceti - - -	5	0 44 34.14	-	S. 2 3	-
	♑ Piscium - - *	5	0 59 52.08	-	N. 4 46	-
10	♐ Ceti - - -	5	0 44 34.13	-	S. 2 3	-
	♑ Piscium - - *	5	0 59 52.07	-	N. 4 46	-
	Moon I. u.c.	(10.1)	1 16 2.24	110.28	3 17	60.89
	Moon I. l.c.	-	1 38 10.35	111.18	5 49	61.11
	♑ Piscium - - *	5	1 32 50.68	-	4 39	-
	♒ Piscium - - *	5	1 36 40.76	-	N. 8 19	-
11	♑ Piscium - - *	5	1 32 50.67	-	N. 4 39	-
	♒ Piscium - - *	5	1 36 40.75	-	8 19	-
	Moon I. u.c.	(11.1)	2 0 32.95	112.69	8 18	61.51
	Moon I. l.c.	-	2 23 17.23	114.79	10 43	62.06
	♑ Ceti - - - *	4.5	2 27 13.16	-	4 52	-
	♒ Ceti - - - *	4	2 36 1.59	-	N. 9 25	-
12	♑ Ceti - - - *	4.5	2 27 13.15	-	N. 4 52	-
	♒ Ceti - - - *	4	2 36 1.59	-	9 25	-
	Moon I. u.c.	(12.1)	2 46 29.96	117.42	13 3	62.75
	Moon I. l.c.	-	3 10 17.24	120.54	15 15	63.57
	♈ Arietis - - -	4	3 2 12.08	-	19 6	-
	♉ Tauri - - - *	4	3 18 14.07	-	N. 9 9	-
13	♈ Arietis - - -	4	3 2 12.08	-	N. 19 6	-
	♉ Tauri - - - *	4	3 18 14.08	-	9 9	-
	Moon I. u.c.	(13.1)	3 34 44.42	124.05	N. 17 19	64.48

452 MOON-CULMINATING STARS.

1834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Tim of ☾'s Set pass. m.
Dec. 13	Moon I. <i>l. c.</i>	- -	^h 3 ^m 59 ^s 55 '63	127 '86	N. 19 12	65 '4
	γ Tauri - - - -	3.4	4 10 24 '57	- -	15 13	-
	δ ¹ Tauri - - - -	4	4 13 25 '60	- -	N. 17 9	-
14	γ Tauri - - - -	3.4	4 10 24 '57	- -	N. 15 13	-
	δ ¹ Tauri - - - -	4	4 13 25 '61	- -	17 9	-
	Moon I. <i>u. c.</i> (14 '2)	- -	4 25 53 '54	131 '81	20 53	66 '4
	"Moon I. <i>l. c.</i>	- -	4 52 38 '84	135 '73	22 20	67 '4
	ε Tauri - - - -	4.5	4 53 14 '50	- -	21 21	-
	m Tauri - - - -	5	4 57 42 '31	- -	N. 18 25	-
15	ε Tauri - - - -	4.5	4 53 14 '51	- -	N. 21 21	-
	m Tauri - - - -	5	4 57 42 '32	- -	18 25	-
	Moon I. <i>u. c.</i> (15 '2)	- -	5 20 9 '97	139 '41	23 30	68 '4
	H Geminorum -	5	5 54 5 '62	- -	23 16	-
	η Geminorum -	4.5	6 4 55 '16	- -	N. 22 33	-
16	H Geminorum -	5	5 54 5 '64	- -	N. 23 16	-
	η Geminorum -	4.5	6 4 55 '18	- -	22 33	-
	Moon II. <i>l. c.</i>	- -	5 50 41 '24	142 '77	24 22	69 '2
	Moon II. <i>u. c.</i> (16 '2)	- -	6 19 30 '53	145 '32	24 55	69 '2
	ζ Geminorum -	4	6 54 19 '13	- -	N. 20 48	-
17	ζ Geminorum -	4	6 54 19 '15	- -	N. 20 48	-
	Moon II. <i>l. c.</i>	- -	6 48 45 '70	147 '06	25 6	70 '2
	Moon II. <i>u. c.</i> (17 '3)	- -	7 18 16 '26	147 '88	24 56	70 '2
	β Geminorum -	2	7 35 12 '66	- -	N. 28 25	-
18	β Geminorum -	2	7 35 12 '69	- -	N. 28 25	-
	Moon II. <i>l. c.</i>	- -	7 47 51 '14	147 '78	24 24	70 '2
	Moon II. <i>u. c.</i> (18 '3)	- -	8 17 19 '62	146 '83	23 31	70 '2
	δ Cancri - - - -	4.5	8 35 17 '85	- -	N. 18 46	-
19	δ Cancri - - - -	4.5	8 35 17 '88	- -	N. 18 46	-
	Moon II. <i>l. c.</i>	- -	8 46 32 '40	145 '19	22 16	70 '4
	Moon II. <i>u. c.</i> (19 '4)	- -	9 15 22 '37	143 '07	20 41	69 '4
	ν Leonis - - - *	5.6	9 49 20 '02	- -	13 14	-
	α Leonis - - - *	1	9 59 34 '30	- -	N. 12 47	-
20	ν Leonis - - - *	5.6	9 49 20 '05	- -	N. 13 14	-
	α Leonis - - - *	1	9 59 34 '33	- -	12 47	-
	Moon II. <i>l. c.</i>	- -	9 43 45 '07	140 '69	18 48	68 '2
	Moon II. <i>u. c.</i> (20 '4)	- -	10 11 38 '80	138 '28	16 38	68 '2
	k Leonis - - - -	6	10 37 39 '77	- -	15 4	-
	χ Leonis - - - *	4.5	10 56 29 '45	- -	N. 8 14	-
21	k Leonis - - - -	6	10 37 39 '80	- -	N. 15 4	-
	χ Leonis - - - *	4.5	10 56 29 '48	- -	8 14	-
	Moon II. <i>l. c.</i>	- -	10 39 4 '43	136 '04	14 13	67 '2
	Moon II. <i>u. c.</i> (21 '4)	- -	11 6 5 '14	134 '15	N. 11 36	67 '2

MOON-CULMINATING STARS. 453

834.	Names.	Mag- nitude.	At Greenwich Transit.			
			Apparent Right Ascension in Time.	Var. of ☾'s R. A. in 1 hour of Long.	Declination.	Sid. Time of ☾'s Sem. pass. mer.
			^h ^m ^s	^s	[°] ['] ^{''}	^s
ec. 21	β Virginis - - -	3.4	11 42 5.24	- -	N. 2 42	- -
22	β Virginis - - -	3.4	11 42 5.27	- -	N. 2 42	- -
	Moon II. <i>l. c.</i> - -	- -	11 32 46.05	132.76	8 48	66.98
	Moon II. <i>u. c.</i> (22.5)	- -	11 59 13.83	131.98	N. 5 52	66.78
	γ ¹ Virginis - - *	4	12 33 16.93	- -	S. 0 32	- -
23	γ ¹ Virginis - - -	4	12 33 16.96	- -	S. 0 32	- -
	Moon II. <i>l. c.</i> - -	- -	12 25 36.16	131.87	N. 2 51	66.75
	Moon II. <i>u. c.</i> (23.5)	- -	12 52 1.52	132.49	S. 0 15	66.90
	α Virginis - - -	1	13 16 29.05	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 16.11	- -	N. 0 15	- -
24	α Virginis - - -	1	13 16 29.09	- -	S. 10 18	- -
	ζ Virginis - - -	4	13 26 16.15	- -	N. 0 15	- -
	Moon II. <i>l. c.</i> - -	- -	13 18 38.87	133.87	S. 3 21	67.24
	Moon II. <i>u. c.</i> (24.5)	- -	13 45 37.23	135.98	6 26	67.77
	ι Virginis - - -	4	14 7 20.59	- -	S. 5 12	- -
25	ι Virginis - - -	4	14 7 20.62	- -	S. 5 12	- -
	Moon II. <i>l. c.</i> - -	- -	14 13 5.19	138.79	9 27	68.47
	Moon II. <i>u. c.</i> (25.6)	- -	14 41 10.62	142.21	12 20	69.31
	β Libræ - - -	2.3	15 8 6.25	- -	S. 8 46	- -
26	β Libræ - - -	2.3	15 8 6.28	- -	S. 8 46	- -
	Moon II. <i>l. c.</i> - -	- -	15 9 59.91	146.07	15 3	70.25
	Moon II. <i>u. c.</i> (26.6)	- -	15 39 37.13	150.16	17 32	71.24
	α Scorpii - - -	1	16 19 15.47	- -	S. 26 3	- -
27	Moon II. <i>l. c.</i> - -	- -	16 10 3.37	154.19	S. 19 45	72.20
	Moon II. <i>u. c.</i> (27.6)	- -	16 41 15.98	157.82	21 38	73.06
28	Moon II. <i>l. c.</i> - -	- -	17 13 7.82	160.66	S. 23 8	73.73
	Moon II. <i>u. c.</i> (28.7)	- -	17 45 27.39	162.39	24 14	74.13
29	Moon II. <i>l. c.</i> - -	- -	18 17 59.66	162.74	S. 24 53	74.21
30	Moon I. <i>u. c.</i> (0.2)	- -	18 47 59.28	161.66	S. 25 6	73.95
	Moon I. <i>l. c.</i> - -	- -	19 20 5.44	159.13	24 53	73.35
31	Moon I. <i>u. c.</i> (1.3)	- -	19 51 33.45	155.35	S. 24 14	72.45
	Moon I. <i>l. c.</i> - -	- -	20 22 10.14	150.64	S. 23 13	71.32

OCCULTATIONS OF FIXED STARS BY THE MOON,

VISIBLE AT GREENWICH.

Date.	Names.	Magnitude.	Immersion.				Emersion.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle	
					N. Point.	Ver- tex.			N. Point.	Point.
1834,			h m	h m	°	°	h m	h m	°	°
Jan. 6	28 Scorpii - -	6	13 10	18 4	110	79	14 2	18 56	211	
20	Tauri - - -	6	2 24	6 25	112	89	3 41	7 42	293	
21	♄ Tauri - - -	5.6	5 34	9 30	55	65	6 25	10 22	331	
22	Q ² Tauri - - -	6	3 11	7 4	150	114	3 58	7 51	234	
22	η Geminorum	4.5	9 50	13 42	106	148	10 51	14 43	252	
22	μ Geminorum	3	13 16	17 7	129	166	13 54	17 46	228	
24	η Cancri - - -	6	15 30	19 14	90	127	16 18*	20 1	245	
30	94 Virginis - -	6	13 21†	16 41	-	-	-	-	-	-
Feb. 4	26 Sagittarii -	6	14 25†	17 26	140	106	14 59	18 0	201	
11	♄ Piscium - - -	4.5	4 20	6 55	60	96	4 56	7 31	354	
24	♄ Virginis - - -	4.5	8 32	10 15	101	68	9 24	11 7	208	
26	♄ Virginis - - -	6	7 54§	9 29	50	11	8 49	10 24	258	
28	ζ ³ Libræ - - -	6	11 27†	12 53	-	-	-	-	-	-
28	ζ ⁴ Libræ - - -	6	12 40†	14 6	-	-	-	-	-	-
Mar. 16	ε Tauri - - -	4	9 0	9 24	116	157	10 1	10 25	263	
18	μ Geminorum	3	11 58†	12 14	-	-	-	-	-	-
20	η Cancri - - -	6	16 17*	16 24	40	73	-	-	-	-
25	65 Virginis - -	6	17 27	17 14	16	50	18 5	17 52	294	
26	94 Virginis - -	6	9 49	9 33	37	2	10 44	10 28	266	
28	♄ Scorpii - - -	4	15 52	15 28	112	111	16 47	16 22	206	
Apr. 20	♄ Virginis - - -	4.5	10 0	8 6	89	69	11 1	9 7	213	
22	♄ Virginis - - -	6	9 11	7 10	89	54	10 5	8 3	214	
24	ζ ³ Libræ - - -	6	9 59†	7 49	50	12	10 54	8 44	260	
24	ζ ⁴ Libræ - - -	6	11 0	8 50	49	14	11 59	9 49	239	
27	♄ Sagittarii -	6	18 7	15 44	59	55	19 17	16 34	295	
May 19	65 Virginis - -	6	17 43†	13 54	-	-	-	-	-	-
22	♄ Scorpii - - -	4	16 27†	12 26	-	-	-	-	-	-
27	χ ¹ Capricorni	5.6	18 49	14 29	109	89	20 9	15 48	277	
June 21	♄ Sagittarii -	6	16 16	10 18	80	59	17 31	11 33	267	
24	ε Capricorni -	5	18 39	12 29	117	92	19 55	13 45	274	
July 15	ζ ¹ Libræ - - -	6	16 58	9 25	80	96	18 9	10 36	236	
15	ζ ³ Libræ - - -	6	18 42†	11 8	-	-	-	-	-	-
15	ζ ⁴ Libræ - - -	6	19 55†	*12 21	-	-	-	-	-	-

OCCULTATIONS OF FIXED STARS BY THE MOON,
VISIBLE AT GREENWICH.

Date.	Names.	Magnitude.	Immersion.				Emersion.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
1834.			h m	h m	o	o	h m	h m	o	o
July 19	χ^1 Sagittarii -	6	20 19†	12 30	-	-	-	-	-	-
21	ϕ Capricorni -	6	19 18	11 21	139	122	20 25	12 27	252	246
28	85 Ceti - - -	6	23 15†	14 50	-	-	-	-	-	-
Aug. 14	α Sagittarii -	6	17 39†	8 8	-	-	-	-	-	-
18	κ Capricorni -	5	16 27†	6 40	138	100	17 19§	7 33	245	211
21	δ Piscium - -	5	17 59†	8 1	148	109	18 51	8 52	258	220
Sept. 11	δ Sagittarii -	6	18 29†	7 8	-	-	-	-	-	-
14	ϵ Capricorni -	5	23 3	11 29	87	102	0 10	12 36	321	346
17	r Piscium - -	4.5	2 20	14 34	67	91	3 3	15 17	357	27
17	δ Piscium - -	5	4 46†	16 59	-	-	-	-	-	-
Oct. 7	b Ophiuchi -	5.6	18 43	5 40	89	103	19 57	6 53	253	277
8	λ Sagittarii -	4	19 32	6 25	104	116	20 46	7 38	256	278
28	ν Virginis - -	4.5	6 53	16 25	44	6	7 50	17 22	266	230
Nov. 9	τ^1 Aquarii - -	6	2 32†	11 17	-	-	-	-	-	-
27	95 Virginis - -	6	8 38§	16 12	51	13	9 33	17 6	253	218
Dec. 8	r Piscium - -	4.5	3 4	9 55	123	152	4 13	11 4	299	334
8	δ Piscium - -	5	5 9	12 0	84	122	6 0†	12 50	329	368
11	ξ^1 Ceti - - -	5	3 27	10 6	115	133	4 46	11 25	306	335
15	n Tauri - - -	5.6	22 41†	5 5	-	-	-	-	-	-
17	m Geminorum	6	23 36	5 52	105	69	0 29	6 45	266	226
20	42 Leonis - - -	6	11 4	17 6	69	82	12 16	18 19	236	264

* Star setting.

‡ Star below the horizon.

§ Star rising.

† A near approach.

The Angles are to be reckoned from the northernmost point, and from the vertex towards the right hand, round the circumference of the Moon's image, as seen in a Telescope that inverts.

The Apparent Places of the Stars, on the days of occultation, are included in the following Table.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ☉ in R. A. of ☿ and ♀.	At Greenwich Mean Time of ☉			Lim Para
				Apparent R. A. of ☿ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ☿ and ♀.	
1834.							
			h m s	h m s	° ' "	☿ ' "	Latit °
Jan. 1	π Virginis -	5	0 47 32	11 52 20.34	N. 7 32 27.5	S. 62 24	20 S.
4	ξ ² Libræ -	5	10 8 35	14 47 44.55	S. 10 43 56.9	61 34	25 S.
5	γ Libræ -	4.5	3 39 58	15 26 13.02	14 13 38.1	49 28	14 S.
5	η Libræ -	4.5	7 29 33	15 34 42.76	S. 15 8 6.2	S. 34 48	0 N.
5	θ Libræ -	4.5	11 48 48	15 44 20.98	S. 16 13 59.3	S. 12 15	20 N.
6	ψ Ophiuchi	5	1 8 22	16 14 21.69	19 38 20.8	N. 69 52	70 N.
6	χ Ophiuchi	5	2 27 44	16 17 21.85	18 4 11.0	S. 35 26	4 S.
6	28 Scorpii -	6	19 26 37	16 56 15.62	S. 21 19 29.3	N. 34 12	62 N.
7	ρ Ophiuchi	4.5	1 49 19	17 11 0.95	S. 20 55 30.8	S. 28 14	2 S.
7	D Ophiuchi	5	11 27 55	17 33 26.20	21 35 34.4	S. 36 47	13 S.
7	b Sagittarii	5	18 23 39	17 49 36.16	23 47 29.5	N. 67 30	66 N.
8	ν ¹ Sagittarii	5	17 44 42	18 44 5.97	S. 22 56 26.0	S. 30 45	14 S.
8	ν ² Sagittarii	5	18 8 52	18 45 2.16	S. 22 52 13.4	S. 35 9	18 S.
11	η Capricorni	5	3 56 38	20 54 54.46	20 30 27.3	0 23	25 N.
11	γ Capricorni	4	21 2 17	21 30 50.78	17 24 36.3	67 7	48 S.
13	ψ ² Aquarii -	5	23 8 32	23 9 14.62	S. 10 5 25.1	S. 39 9	3 S.
13	ψ ¹ Aquarii -	5	23 42 5	23 10 17.57	S. 10 31 11.5	S. 7 26	29 N.
14	r Piscium -	4.5	23 1 48	23 53 25.23	6 56 21.6	N. 35 11	80 N.
15	s Piscium -	5	0 53 16	23 56 48.73	6 38 21.3	38 20	83 N.
16	m Ceti -	5	3 10 59	0 44 30.42	S. 2 2 58.3	N. 68 55	88 N.
17	ν Piscium -	5	5 40 21	1 32 46.96	N. 4 38 35.1	S. 19 46	20 N.
17	ξ ¹ Ceti -	5	22 32 16	2 4 11.87	8 3 47.9	S. 28 33	12 N.
20	Tauri -	6	7 20 23	3 58 29.10	16 53 21.6	N. 35 7	83 N.
20	δ ² Tauri -	5	15 16 24	4 15 53.37	N. 17 32 27.8	N. 63 49	90 N.
20	ε Tauri -	4	16 38 19	4 18 55.59	N. 18 48 18.9	S. 0 54	38 N.
21	ι Tauri -	4.5	7 40 16	4 53 10.75	21 20 43.8	S. 42 19	3 S.
21	ρ ¹ Tauri -	5.6	9 43 42	4 57 59.01	20 11 31.3	N. 40 17	90 N.
21	ο Tauri -	5	18 2 12	5 17 40.08	N. 21 47 16.0	S. 6 16	33 N.
21	ζ Tauri -	3.4	22 12 45	5 27 43.65	N. 21 2 1.7	N. 60 35	90 N.
22	Q ¹ Tauri -	6	7 58 49	5 51 40.12	22 23 22.0	N. 20 59	62 N.
22	H Geminor.	5	8 55 59	5 54 1.98	23 15 52.3	S. 28 9	12 N.
22	η Geminor.	4.5	13 16 16	6 4 51.58	N. 22 32 49.6	N. 28 40	73 N.
22	μ Geminor.	3	16 28 34	6 12 55.19	N. 22 35 28.0	N. 34 27	82 N.
23	δ Geminor.	3.4	14 47 47	7 10 12.54	22 16 50.1	68 12	90 N.
24	η Cancrī -	6	18 42 13	8 23 7.27	20 59 56.8	N. 50 44	90 N.
24	γ Cancrī -	5	22 45 25	8 33 40.49	N. 22 3 35.6	S. 37 4	5 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Limiting Parallels.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.							Latitude.
Jan. 26	η Leonis	3.4	h m s 7 57 14	h m s 9 58 16.71	° ′ ″ N. 17 34 5.8	♄ ′ ″ S. 54 35	12 S. 72 S.
27	ι Leonis	4	15 52 57	11 15 15.95	11 26 32.0	79 3	47 S. 79 S.
28	ξ ¹ Virginis	5	1 7 41	11 36 43.30	9 10 48.9	S. 70 10	30 S. 81 S.
28	ν Virginis	4.5	1 23 26	11 37 19.54	N. 7 27 33.5	N. 29 26	70 N. 12 S.
28	π Virginis	5	7 57 20	11 52 21.15	N. 7 32 22.8	S. 67 43	26 S. 82 S.
30	94 Virginis	6	16 34 49	13 57 30.16	S. 8 5 38.5	N. 67 33	82 N. 28 N.
31	ξ ² Libræ	5	15 37 7	14 47 45.42	10 44 1.6	S. 68 0	34 S. 90 S.
Feb. 1	γ Libræ	4.5	9 5 47	15 26 13.89	S. 14 13 42.1	S. 55 35	21 S. 90 S.
1	η Libræ	4.5	12 55 40	15 34 43.62	S. 15 8 10.1	S. 40 49	6 S. 90 S.
1	θ Libræ	4.5	17 15 39	15 44 21.84	16 14 3.0	S. 18 10	15 N. 58 S.
2	ν Scorpii	4	1 18 9	16 2 20.15	19 1 13.0	N. 73 41	71 N. 50 N.
2	ψ Ophiuchi	5	6 39 41	16 14 22.53	S. 19 38 23.7	N. 64 21	70 N. 30 N.
2	χ Ophiuchi	5	7 59 39	16 17 22.67	S. 18 4 14.0	S. 40 54	10 S. 90 S.
3	ρ Ophiuchi	4.5	7 36 13	17 11 1.71	20 55 32.6	32 46	7 S. 80 S.
3	D Ophiuchi	5	17 22 44	17 33 26.93	21 35 35.7	S. 40 52	17 S. 90 S.
4	b Sagittarii	5	0 24 32	17 49 36.88	S. 23 47 30.3	N. 63 45	66 N. 34 N.
4	26 Sagittarii	6	18 42 14	18 31 41.96	S. 23 58 43.7	N. 33 16	54 N. 5 S.
5	ν ¹ Sagittarii	5	0 6 53	18 44 6.56	22 56 26.1	S. 33 14	17 S. 83 S.
5	ν ² Sagittarii	5	0 31 25	18 45 2.75	22 52 13.5	S. 37 36	21 S. 90 S.
7	η Capricorni	5	11 0 22	20 54 54.68	S. 20 30 26.5	N. 0 55	27 N. 38 S.
8	γ Capricorni	4	4 12 9	21 30 50.90	S. 17 24 35.7	S. 64 34	43 S. 90 S.
8	δ Capricorni	3.4	7 36 43	21 37 49.92	16 52 41.1	69 40	55 S. 90 S.
10	ψ ² Aquarii	5	6 22 44	23 9 14.50	10 5 25.5	32 53	4 N. 80 S.
10	ψ ³ Aquarii	5	6 56 16	23 10 17.45	S. 10 31 11.8	S. 1 8	35 N. 41 S.
11	r Piscium	4.5	6 15 29	23 53 25.02	S. 6 56 22.3	N. 43 4	83 N. 4 N.
11	s Piscium	5	8 6 59	23 56 48.52	S. 6 38 22.0	N. 46 21	83 N. 7 N.
13	ν Piscium	5	13 6 49	1 32 46.62	N. 4 38 33.6	S. 9 7	30 N. 48 S.
14	ξ ¹ Ceti	5	6 10 7	2 4 11.48	N. 8 3 46.4	S. 17 36	22 N. 56 S.
17	ε Tauri	4	1 39 12	4 18 55.21	N. 18 48 18.5	N. 9 44	50 N. 19 S.
17	ι Tauri	4.5	17 5 27	4 53 10.41	21 20 43.8	S. 32 19	7 N. 59 S.
18	ο Tauri	5	3 44 12	5 17 39.76	21 47 16.3	N. 3 12	43 N. 20 S.
18	ξ Tauri	3.4	8 1 25	5 27 43.35	N. 21 2 1.9	N. 69 48	90 N. 54 N.
18	H Geminor.	5	19 1 15	5 54 1.73	N. 23 15 53.0	S. 19 37	20 N. 39 S.
18	η Geminor.	4.5	23 27 58	6 4 51.35	22 32 50.3	N. 36 53	88 N. 15 N.
19	μ Geminor.	3	2 44 52	6 12 54.97	22 35 28.7	42 27	90 N. 21 N.
20	δ Geminor.	3.4	1 31 48	7 10 12.44	N. 22 16 51.0	N. 74 22	90 N. 65 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♂ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♂			Limit Parall.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.			^h ^m ^s	^h ^m ^s	[°] ['] ["]	[°] ['] ["]	Latit [°]
Feb. 21	39 Cancri -	6	8 38 16	8 30 33.17	N. 20 35 18.1	N. 61 41	90 N.
21	40 Cancri -	6	8 40 24	8 30 38.71	20 33 8.3	N. 63 38	90 N.
21	γ Cancri -	5	9 50 39	8 33 40.61	22 3 36.4	S. 34 11	7 N.
22	η Leonis -	3.4	18 54 52	9 58 17.02	N. 17 34 5.4	S. 55 47	13 S.
24	ξ ¹ Virginis -	5	11 14 7	11 36 43.83	N. 9 10 46.6	S. 76 45	39 S.
24	ν Virginis -	4.5	11 29 24	11 37 20.06	7 27 30.9	N. 22 49	62 N.
24	π Virginis -	5	17 51 38	11 52 21.71	N. 7 32 20.2	S. 75 8	35 S.
26	l ³ Virginis -	6	10 57 42	13 26 53.73	S. 4 32 51.8	N. 36 15	78 N.
28	ζ ² Libræ -	6	13 32 25	15 21 18.63	S. 16 1 59.6	N. 62 43	74 N.
28	ξ ² Libræ -	6	14 31 29	15 23 33.01	16 16 59.3	N. 66 52	74 N.
28	γ Libræ -	4.5	15 42 32	15 26 14.73	14 13 45.8	S. 69 15	39 S.
28	η Libræ -	4.5	19 26 14	15 34 44.47	S. 15 8 13.7	S. 54 29	20 S.
28	θ Libræ -	4.5	23 39 32	15 44 22.70	S. 16 14 6.5	S. 31 49	2 N.
Mar. 1	ν Scorpii -	4	7 30 36	16 2 21.03	19 1 16.1	N. 60 8	71 N.
1	ψ Ophiuchi -	5	12 45 14	16 14 23.40	19 38 26.6	N. 50 55	70 N.
1	χ Ophiuchi -	5	14 3 35	16 17 23.54	S. 18 4 16.9	S. 54 18	24 S.
2	ρ Ophiuchi -	4.5	13 17 45	17 11 2.57	S. 20 55 34.5	S. 45 22	20 S.
2	D Ophiuchi -	5	22 58 30	17 33 27.77	21 35 37.1	S. 53 0	30 S.
3	b Sagittarii -	5	5 57 23	17 49 37.72	23 47 31.2	N. 52 0	66 N.
4	ν ¹ Sagittarii -	5	5 36 43	18 44 7.32	S. 22 56 26.0	S. 43 29	27 S.
4	ν ² Sagittarii -	5	6 1 17	18 45 3.51	S. 22 52 13.4	S. 47 50	32 S.
6	η Capricorni -	5	16 52 36	20 54 55.13	20 30 24.7	S. 4 13	22 N.
7	γ Capricorni -	4	10 13 27	21 30 51.26	17 24 34.0	S. 67 51	50 S.
9	ψ ² Aquarii -	5	12 42 36	23 9 14.57	S. 10 5 24.4	S. 30 12	7 N.
9	ψ ³ Aquarii -	5	13 16 15	23 10 17.52	S. 10 31 10.6	N. 1 38	38 N.
10	r Piscium -	4.5	12 38 24	23 53 24.99	6 56 21.6	N. 48 42	83 N.
10	s Piscium -	5	14 30 0	23 56 48.48	S. 6 38 21.3	N. 52 12	83 N.
12	ν Piscium -	5	19 29 56	1 32 46.37	N. 4 38 33.0	N. 2 32	42 N.
13	ξ ¹ Ceti -	5	12 35 3	2 4 11.17	N. 8 3 45.5	S. 4 21	35 N.
16	ε Tauri -	4	8 46 21	4 18 54.74	18 48 17.9	N. 25 40	70 N.
17	ι Tauri -	4.5	0 32 37	4 53 9.90	21 20 43.5	N. 16 25	58 N.
17	ο Tauri -	5	11 27 24	5 17 39.28	N. 21 47 16.2	N. 18 55	61 N.
18	H Geminor. -	5	3 10 15	5 54 1.24	N. 23 15 53.4	S. 4 21	35 N.
18	η Geminor. -	4.5	7 44 58	6 4 50.88	22 32 50.8	N. 51 59	90 N.
18	μ Geminor. -	3	11 7 54	6 12 54.51	22 35 29.3	N. 57 24	90 N.
20	η Cancri -	6	15 46 57	8 23 7.10	N. 20 59 58.9	N. 65 13	90 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ϕ in R. A. of ζ and \ast .	At Greenwich Mean Time of ϕ			Limiting Parallels.
				Apparent R. A. of ζ and \ast .	Apparent Declination of \ast .	Diff. of Apparent Dec. of ζ and \ast .	
1834.						ζ	Latitude.
Jan. 20	γ Cancri -	5	h m s 19 58 38	h m s 8 33 40.37	N. 22 3 38.0	S. 23 29	18 N. 47 S.
22	η Leonis -	3.4	5 51 12	9 58 16.99	17 34 6.7	49 27	6 S. 72 S.
23	ϵ Leonis -	4	13 31 36	11 15 16.61	11 26 30.3	83 22	58 S. 79 S.
23	ξ^1 Virginis -	5	22 31 52	11 36 44.04	N. 9 10 46.4	S. 77 17	39 S. 81 S.
23	ν Virginis -	4.5	22 47 8	11 37 20.27	N. 7 27 30.5	N. 22 14	61 N. 19 S.
24	π Virginis -	5	5 8 11	11 52 21.97	N. 7 32 19.7	S. 76 53	37 S. 82 S.
25	ϕ^5 Virginis -	6	16 23 13	13 14 44.28	S. 4 3 16.2	N. 77 40	86 N. 39 N.
26	η^4 Virginis -	6	10 48 39	13 57 31.48	S. 8 5 45.6	N. 44 18	81 N. 1 S.
26	η^5 Virginis -	6	10 59 41	13 57 57.13	S. 8 31 3.6	N. 66 56	81 N. 24 N.
28	η Libræ -	4.5	4 18 51	15 34 45.23	15 8 16.3	S. 69 22	38 S. 90 S.
28	θ Libræ -	4.5	8 23 4	15 44 23.47	16 14 9.0	S. 46 56	11 S. 90 S.
28	ν Scorpii -	4	15 57 16	16 2 21.81	S. 19 1 18.5	N. 44 37	71 N. 3 N.
28	ψ Ophiuchi	5	21 0 45	16 14 24.20	S. 19 38 28.9	N. 35 11	64 N. 7 S.
28	χ Ophiuchi	5	22 16 20	16 17 24.34	18 4 19.0	S. 70 5	44 S. 90 S.
29	ρ Ophiuchi	4.5	20 43 45	17 11 3.42	20 55 35.7	61 37	38 S. 90 S.
30	D Ophiuchi	5	6 6 53	17 33 28.66	S. 21 35 38.0	S. 69 16	53 S. 90 S.
30	δ Sagittarii	5	12 53 54	17 49 38.60	S. 23 47 31.7	N. 35 46	59 N. 4 S.
30	α Sagittarii	6	14 10 0	17 52 39.60	24 16 18.7	N. 60 15	66 N. 26 N.
31	ν^1 Sagittarii	5	11 59 27	18 44 8.18	22 56 25.4	S. 59 12	45 S. 90 S.
31	ν^2 Sagittarii	5	12 23 31	18 45 4.36	S. 22 52 12.7	S. 63 33	52 S. 90 S.
Apr. 2	η Capricorni	5	22 37 4	20 54 55.79	S. 20 30 21.9	S. 16 42	10 N. 59 S.
3	κ Capricorni	5	17 11 3	21 33 21.58	19 37 8.6	N. 63 28	70 N. 34 N.
5	ψ^2 Aquarii -	5	18 37 27	23 9 14.90	10 5 21.7	S. 35 40	2 N. 86 S.
5	ψ^3 Aquarii -	5	19 11 15	23 10 17.85	S. 10 31 7.8	S. 3 46	33 N. 44 S.
6	r Piscium -	4.5	18 38 36	23 53 25.20	S. 6 56 19.2	N. 46 24	83 N. 7 N.
6	s Piscium -	5	20 30 31	23 56 48.68	S. 6 38 19.0	50 9	83 N. 11 N.
9	ν Piscium -	5	1 30 5	1 32 46.33	N. 4 38 33.6	7 38	48 N. 32 S.
9	ξ^1 Ceti -	5	18 31 46	2 4 11.07	N. 8 3 45.7	N. 2 54	43 N. 35 S.
12	ϵ Tauri -	4	14 33 55	4 18 54.37	N. 18 48 17.3	N. 39 15	90 N. 10 N.
13	ϵ Tauri -	4.5	6 24 18	4 53 9.49	21 20 43.0	S. 1 59	38 N. 27 S.
13	ϕ Tauri -	5	17 24 20	5 17 38.84	21 47 15.9	N. 33 49	84 N. 9 N.
14	Q^5 Tauri -	6	8 17 23	5 51 38.92	N. 22 23 22.9	N. 60 13	90 N. 42 N.
14	H Geminor.	5	9 18 35	5 54 0.77	N. 23 15 53.4	N. 11 0	52 N. 9 S.
14	η Geminor.	4.5	13 57 32	6 4 50.40	22 32 50.9	N. 67 26	90 N. 55 N.
16	κ Geminor.	4	3 24 7	7 34 24.50	24 47 24.8	S. 65 57	35 S. 65 S.
17	γ Cancri -	5	3 43 46	8 33 39.94	N. 22 3 39.8	S. 8 49	31 N. 32 S.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Limiting Parallels
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.			h m s	h m s	° ′ ″	♄ ° ′ ″	Latitude
April 18	η Leonis	- 3.4	14 47 37	9 58 16.71	N. 17 34 8.7	S. 37 11	6° N. 69
19	ι Leonis	- 4	23 30 58	11 15 16.50	11 26 31.9	74 57	37 S. 79
20	ξ ¹ Virginis	- 5	8 46 25	11 36 43.98	9 10 47.8	S. 70 13	28 S. 81
20	ν Virginis	- 4.5	9 2 6	11 37 20.22	N. 7 27 31.6	N. 29 17	70 N. 13
20	π Virginis	- 5	15 32 45	11 52 21.95	N. 7 32 20.9	S. 70 51	28 S. 82
22	ρ Virginis	- 6	8 37 57	13 26 54.44	S. 4 32 54.7	N. 26 36	66 N. 17
24	ξ ² Libræ	- 6	9 15 34	15 21 19.89	16 2 4.0	39 57	73 N. 4
24	ξ ⁴ Libræ	- 6	10 11 27	15 23 34.28	S. 16 17 3.8	N. 43 56	73 N. 0
24	η Libræ	- 4.5	14 49 58	15 34 45.79	S. 15 8 17.6	S. 68 20	35 S. 90
24	θ Libræ	- 4.5	18 48 52	15 44 24.05	16 14 10.4	S. 56 21	21 S. 90
25	ν Scorpis	- 4	2 12 22	16 2 22.46	19 1 20.1	N. 34 24	64 N. 8
25	ψ Ophiuchi	5	7 8 8	16 14 24.88	S. 19 38 30.3	N. 24 30	52 N. 17
26	ρ Ophiuchi	4.5	6 10 27	17 11 4.21	S. 20 55 36.4	S. 74 9	59 S. 90
26	b Sagittarii	5	21 50 29	17 49 39.43	23 47 31.8	N. 22 22	42 N. 18
27	s Sagittarii	6	16 16 25	18 34 37.59	25 10 4.3	N. 62 50	65 N. 30
May 3	ψ ² Aquarii	- 5	0 56 18	23 9 15.51	S. 10 5 17.2	S. 46 22	10 S. 90
3	ψ ² Aquarii	- 5	1 30 5	23 10 18.46	S. 10 31 3.3	S. 14 25	23 N. 55
4	r Piscium	- 4.5	0 58 39	23 53 25.71	6 56 15.0	N. 37 47	83 N. 3
4	s Piscium	- 5	2 50 46	23 56 49.19	S. 6 38 14.8	41 43	76 N. 1
6	ν Piscium	- 5	7 53 40	1 32 46.61	N. 4 38 36.0	N. 4 56	45 N. 35
7	ξ ¹ Ceti	- 5	0 53 3	2 4 11.28	N. 8 3 47.5	N. 2 8	42 N. 36
9	ε Tauri	- 4	20 24 53	4 18 54.28	18 48 17.3	45 22	90 N. 16
10	ι Tauri	- 4.5	12 6 15	4 53 9.33	21 20 42.7	5 24	46 N. 20
10	ο Tauri	- 5	23 0 30	5 17 38.63	N. 21 47 15.6	N. 41 59	90 N. 17
11	H Geminor.	5	14 48 10	5 54 0.50	N. 23 15 53.2	N. 20 9	63 N. 1
12	ε Geminor.	3	7 37 33	6 33 41.74	25 17 17.7	S. 65 15	36 S. 65
13	κ Geminor.	4	8 53 22	7 34 24.11	24 47 25.2	S. 54 55	18 S. 65
14	γ Cancris	- 5	9 28 44	8 33 39.54	N. 22 3 40.9	N. 2 44	43 N. 22
15	η Leonis	- 3.4	21 18 4	9 58 16.35	N. 17 34 10.6	S. 25 48	16 N. 57
17	ι Leonis	- 4	7 3 1	11 15 16.25	11 26 34.0	64 57	23 S. 79
17	ξ ¹ Virginis	- 5	16 37 42	11 36 43.77	9 10 49.7	S. 60 51	17 S. 81
17	ν Virginis	- 4.5	16 53 55	11 37 20.01	N. 7 27 33.4	N. 38 38	84 N. 4
17	π Virginis	- 5	23 38 13	11 52 21.76	N. 7 32 22.7	S. 62 0	18 S. 82
19	65 Virginis	- 6	12 37 57	13 14 44.47	S. 4 3 16.0	N. 82 58	86 N. 55
22	η Libræ	- 4.5	1 10 44	15 34 46.14	15 8 18.0	S. 79 49	62 S. 90
22	θ Libræ	- 4.5	5 10 38	15 44 24.44	S. 16 14 10.9	S. 58 15	23 S. 90

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

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				Apparent R. A. of ♈ and ♉.	Apparent Declination of ♉.	Diff. of Apparent Dec. of ♈ and ♉.	
1834.						♈	Latitude.
May 22	β ¹ Scorpii -	2	h m s 9 53 5	h m s 15 55 49.12	S. 19 20 40.7	N. 78 26	71 N. 55 N.
22	ν Scorpii -	4	12 34 47	16 2 22.88	19 1 20.8	31 47	61 N. 11 S.
22	ψ Ophiuchi	5	17 30 9	16 14 25.34	19 38 31.0	21 24	49 N. 20 S.
23	ε ² Ophiuchi	5	20 28 29	17 21 18.92	S. 23 49 34.1	N. 70 58	66 N. 42 N.
24	b Sagittarii	5	7 49 12	17 49 40.15	S. 23 47 31.8	N. 16 17	36 N. 24 S.
25	h ² Sagittarii	4.5	23 14 34	19 26 36.89	25 14 25.5	N. 72 2	65 N. 56 N.
27	η Capricorni	5	13 41 35	20 54 57.53	20 30 14.6	S. 40 1	12 S. 90 S.
27	χ ¹ Capricorni	5.6	15 33 48	20 59 2.93	S. 21 51 10.3	N. 53 29	68 N. 17 N.
28	ε Capricorni	5	4 58 22	21 27 47.09	S. 20 12 11.6	N. 54 4	70 N. 17 N.
28	κ Capricorni	5	7 38 34	21 33 23.26	19 37 0.0	N. 40 33	70 N. 1 N.
30	ψ ² Aquarii -	5	8 12 25	23 9 16.31	10 5 12.0	S. 55 6	20 S. 90 S.
30	ψ ² Aquarii -	5	8 45 58	23 10 19.25	S. 10 30 58.1	S. 23 9	15 N. 66 S.
31	r Piscium -	4.5	8 8 29	23 53 26.45	S. 6 56 9.7	N. 29 49	73 N. 11 S.
31	s Piscium -	5	10 0 22	23 56 49.92	S. 6 38 9.5	N. 33 50	79 N. 7 S.
June 2	ν Piscium -	5	15 6 30	1 32 47.20	N. 4 38 40.0	S. 0 15	40 N. 40 S.
3	ξ ¹ Ceti - -	5	8 7 28	2 4 11.81	N. 8 3 50.9	S. 2 1	38 N. 40 S.
6	ε Tauri - -	4	3 22 43	4 18 54.55	N. 18 48 18.2	N. 45 21	90 N. 15 N.
6	ι Tauri - -	4.5	18 53 17	4 53 9.51	21 20 43.0	6 14	47 N. 20 S.
7	ο Tauri - -	5	5 38 48	5 17 38.76	21 47 15.8	43 21	90 N. 18 N.
7	H Geminor.	5	21 12 21	5 54 0.54	N. 23 15 53.1	N. 22 15	65 N. 1 N.
8	ε Geminor.	3	13 45 47	6 33 41.70	N. 25 17 17.3	S. 62 27	30 S. 65 S.
9	κ Geminor.	4	14 38 37	7 34 23.96	24 47 25.1	S. 51 14	13 S. 65 S.
10	γ Cancrī -	5	14 56 48	8 33 39.31	22 3 41.4	N. 7 5	47 N. 18 S.
12	η Leonis -	3.4	2 38 45	9 58 16.05	N. 17 34 11.9	S. 20 54	21 N. 52 S.
13	ι Leonis -	4	12 42 14	11 15 15.96	N. 11 26 35.9	S. 60 3	17 S. 79 S.
13	ξ ¹ Virginis -	5	22 26 50	11 36 43.50	9 10 51.7	S. 56 4	12 S. 81 S.
13	ν Virginis -	4.5	22 43 22	11 37 19.74	7 27 35.3	N. 43 24	90 N. 1 N.
14	π Virginis -	5	5 35 48	11 52 21.50	N. 7 32 24.7	S. 57 20	13 S. 82 S.
18	η Libræ - -	4.5	9 49 0	15 34 46.27	S. 15 8 17.8	S. 78 29	59 S. 90 S.
18	θ Libræ - -	4.5	13 54 25	15 44 24.59	16 14 10.8	S. 57 4	22 S. 90 S.
18	ν Scorpii -	4	21 28 1	16 2 23.08	19 1 21.1	N. 32 41	58 N. 14 S.
19	ψ Ophiuchi	5	2 29 7	16 14 25.57	S. 19 38 31.4	N. 22 8	50 N. 19 S.
20	ε ² Ophiuchi	5	5 49 52	17 21 19.33	S. 23 49 34.6	N. 70 50	66 N. 42 N.
20	b Sagittarii	5	17 15 16	17 49 40.62	23 47 32.0	15 51	65 N. 25 S.
21	s Sagittarii	6	11 22 10	18 34 38.99	25 10 3.5	54 52	65 N. 17 N.
22	h ² Sagittarii	4.5	8 36 41	19 26 37.62	S. 25 14 24.6	N. 70 50	65 N. 49 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ☉ in R. A. of ☿ and ♄.	At Greenwich Mean Time of ☉			Limits Parallels
				Apparent R. A. of ☿ and ♄.	Apparent Declination of ♄.	Diff. of Apparent Dec. of ☿ and ♄.	
1834.			h m s	h m s	° ' "	° ' "	Latitude
June 23	η Capricorni	5	22 38 1	20 54 58.35	S. 20 30 11.6	S. 41 35	14 S. 9
24	ε Capricorni	5	13 41 56	21 27 47.94	20 12 8.1	N. 52 27	70 N. 1
24	κ Capricorni	5	16 19 53	21 33 24.11	19 36 56.4	N. 38 56	70 N.
26	ψ ² Aquarii	5	16 17 46	23 9 17.17	S. 10 5 6.7	S. 56 33	21 S. 9
26	ψ ³ Aquarii	5	16 51 0	23 10 20.11	S. 10 30 52.8	S. 24 36	13 N. 6
27	r Piscium	4.5	16 3 44	23 53 27.30	6 56 4.1	N. 28 34	71 N. 1
27	s Piscium	5	17 55 7	23 56 50.77	S. 6 38 3.9	N. 32 36	77 N.
29	ν Piscium	5	23 2 18	1 32 47.98	N. 4 38 45.1	S. 0 54	39 N. 4
30	ξ ¹ Ceti	5	16 8 15	2 4 12.57	N. 8 3 55.5	S. 2 29	38 N. 4
July 3	ε Tauri	4	11 37 57	4 18 55.12	18 48 20.2	N. 45 14	90 N. 1
4	ι Tauri	4.5	3 5 58	4 53 10.04	21 20 44.3	6 5	46 N. 2
4	ο Tauri	5	13 47 43	5 17 39.21	N. 21 47 16.7	N. 43 10	90 N. 1
5	H Geminor.	5	5 12 49	5 54 0.92	N. 23 15 53.4	N. 21 58	65 N.
5	ε Geminor.	3	21 33 25	6 33 41.97	25 17 17.0	S. 62 55	30 S. 6
6	κ Geminor.	4	22 0 32	7 34 24.08	24 47 24.6	S. 52 2	13 S. 6
7	γ Cancri	5	21 48 41	8 33 39.30	N. 22 3 41.2	N. 5 52	46 N. 1
9	η Leonis	3.4	8 45 55	9 58 15.90	N. 17 34 12.4	S. 22 48	19 N. 5
10	ι Leonis	4	18 17 33	11 15 15.73	11 26 37.1	62 37	20 S. 7
11	ξ ¹ Virginis	5	3 56 32	11 36 43.24	9 10 53.1	S. 58 47	15 S. 8
11	ν Virginis	4.5	4 12 56	11 37 19.48	N. 7 27 36.8	N. 40 41	89 N.
11	π Virginis	5	11 2 35	11 52 21.24	N. 7 32 26.2	S. 60 9	16 S. 8
15	ζ ¹ Libræ	6	9 25 56	15 18 55.97	S. 16 7 51.8	N. 55 58	74 N. 1
15	ζ ² Libræ	6	10 29 17	15 21 20.17	16 2 4.2	38 7	72 N.
15	ζ ³ Libræ	6	11 28 15	15 23 34.57	S. 16 17 4.0	N. 41 58	74 N.
15	θ Libræ	4.5	20 32 36	15 44 24.50	S. 16 14 10.4	S. 59 21	25 S. 9
16	β ¹ Scorpii	2	1 27 48	15 55 49.23	19 20 41.1	N. 77 18	71 N. 5
16	ν Scorpii	4	4 16 37	16 2 23.02	19 1 21.1	30 37	60 N. 1
16	ψ Ophiuchi	5	9 24 40	16 14 25.53	S. 19 38 31.4	N. 20 11	48 N. 2
17	e ² Ophiuchi	5	13 21 40	17 21 19.44	S. 23 49 35.2	N. 69 45	66 N. 4
18	b Sagittarii	5	1 0 30	17 49 40.80	23 47 32.5	15 9	35 N. 5
19	χ ¹ Sagittarii	6	12 9 13	19 15 12.38	24 49 16.1	38 6	60 N.
19	h ² Sagittarii	4.5	16 55 4	19 26 38.04	S. 25 14 24.7	N. 71 42	65 N. 5
21	η Capricorni	5	7 6 33	20 54 58.97	S. 20 30 10.0	S. 39 3	11 S. 5
21	φ Capricorni	6	12 11 25	21 6 12.27	21 19 56.7	N. 46 23	69 N.
21	ε Capricorni	5	22 9 18	21 27 48.60	20 12 6.1	55 41	70 N. 1
22	κ Capricorni	5	0 46 48	21 33 24.81	S. 19 36 54.1	N. 42 17	70 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

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				Apparent R. A. of ☿ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ☿ and ♀.	
1834.			h m s	h m s	° ′ ″	☿ ° ′ ″	Latitude. ° ′ ″
July 24	ψ ² Aquarii -	5	0 30 4	23 9 17.97	S. 10 5 2.3	S. 51 9	14 S. 90 S.
24	ψ ² Aquarii -	5	1 3 7	23 10 20.92	10 30 48.4	S. 19 11	19 N. 61 S.
25	r Piscium -	4.5	0 8 50	23 53 28.14	6 55 59.1	N. 34 48	80 N. 6 S.
25	s Piscium -	5	1 59 47	23 56 51.61	S. 6 37 58.9	N. 38 53	84 N. 2 S.
27	ν Piscium -	5	7 7 19	1 32 48.86	N. 4 38 50.6	N. 6 22	47 N. 33 S.
28	ξ ¹ Ceti -	5	0 19 26	2 4 13.45	8 4 0.7	4 48	45 N. 34 S.
28	85 Ceti -	6	16 2 36	2 33 33.70	10 1 59.0	66 0	90 N. 36 N.
30	ε Tauri -	4	20 31 17	4 18 55.89	N. 18 48 22.9	N. 50 57	90 N. 22 N.
31	ι Tauri -	4.5	12 8 29	4 53 10.77	N. 21 20 46.2	N. 11 6	52 N. 15 S.
31	ο Tauri -	5	22 55 21	5 17 39.90	21 47 18.2	N. 47 38	90 N. 23 N.
Aug. 1	B Tauri -	5	8 0 44	5 38 49.74	24 30 14.6	S. 72 38	59 S. 65 S.
1	H Geminor.	5	14 25 25	5 54 1.55	N. 23 15 54.1	N. 25 34	70 N. 4 N.
2	ε Geminor.	3	6 47 23	6 33 42.54	N. 25 17 16.8	S. 60 19	25 S. 65 S.
3	κ Geminor.	4	7 7 48	7 34 24.49	24 47 23.8	S. 51 10	12 S. 65 S.
4	γ Cancri -	5	6 38 44	8 33 39.54	22 3 40.3	N. 4 51	45 N. 20 S.
5	η Leonis -	3.4	16 53 57	9 58 15.92	N. 17 34 11.9	S. 26 48	16 N. 57 S.
7	ι Leonis -	4	1 33 58	11 15 15.58	N. 11 26 37.4	S. 69 23	28 S. 79 S.
7	ξ ¹ Virginis -	5	10 57 39	11 36 43.06	9 10 53.6	S. 66 16	23 S. 81 S.
7	ν Virginis -	4.5	11 13 38	11 37 19.31	7 27 37.5	N. 33 11	76 N. 9 S.
7	π Virginis -	5	17 52 39	11 52 21.05	N. 7 32 26.9	S. 68 8	25 S. 82 S.
10	κ Virginis -	4	5 25 53	14 4 3.53	S. 9 29 51.0	N. 76 41	81 N. 41 N.
12	β ¹ Scorpii -	2	6 57 38	15 55 48.93	19 20 40.7	68 4	71 N. 32 N.
12	ν Scorpii -	4	9 47 26	16 2 22.72	19 1 20.8	21 30	51 N. 20 S.
12	ψ Ophiuchi	5	14 57 34	16 14 25.25	S. 19 38 31.2	N. 11 20	39 N. 29 S.
12	ω Ophiuchi	5	18 20 21	16 22 19.84	S. 21 6 12.0	N. 69 45	69 N. 38 N.
13	ε ² Ophiuchi	5	19 12 47	17 21 19.25	23 49 35.8	62 30	66 N. 28 N.
14	b Sagittarii	5	7 1 43	17 49 40.66	23 47 33.2	8 42	28 N. 32 S.
14	a Sagittarii	6	8 17 0	17 52 41.70	S. 24 16 20.3	N. 33 9	55 N. 7 S.
15	h ² Sagittarii	4.5	23 34 38	19 26 38.11	S. 25 14 25.7	N. 68 23	65 N. 44 N.
17	η Capricorni	5	14 17 11	20 54 59.24	20 30 9.9	S. 38 51	11 S. 90 S.
18	ε Capricorni	5	5 28 38	21 27 48.97	20 12 5.7	N. 57 21	70 N. 21 N.
18	κ Capricorni	5	8 7 24	21 33 25.17	S. 19 36 53.7	N. 44 13	70 N. 5 N.
19	τ ¹ Aquarii -	6	16 19 32	22 38 56.57	S. 14 55 30.0	N. 72 57	75 N. 52 N.
20	ψ ² Aquarii -	5	8 2 25	23 9 18.51	10 4 59.8	S. 44 30	7 S. 90 S.
20	ψ ² Aquarii -	5	8 35 30	23 10 21.46	10 30 45.9	S. 12 28	25 N. 53 S.
21	r Piscium -	4.5	7 41 23	23 53 28.76	S. 6 55 55.9	N. 43 36	83 N. 3 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Mo

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Lim Para
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.			h m s	h m s	° ' "	° ' "	Lat
Aug. 21	s Piscium -	5	9 32 17	23 56 52.24	S. 6 37 55.6	N. 47 50	83 N.
23	ν Piscium -	5	14 41 35	1 32 49.61	N. 4 38 55.0	18 51	61 N.
24	ξ ¹ Ceti -	5	7 58 10	2 4 14.23	8 4 5.1	17 56	60 N.
27	ε Tauri -	4	4 58 56	4 18 56.77	N. 18 48 25.8	N. 63 56	90 N.
27	o Tauri -	4.5	20 53 9	4 53 11.61	N. 21 20 48.3	N. 23 27	67 N.
28	ι Tauri -	5	7 52 18	5 17 40.75	21 47 19.8	N. 59 26	90 N.
28	B Tauri -	5	17 8 5	5 38 50.55	24 30 15.6	S. 61 22	29 S.
28	H Geminor.	5	23 39 59	5 54 2.34	N. 23 15 54.9	N. 36 24	90 N.
29	ε Geminor.	3	16 19 27	6 33 43.27	N. 25 17 16.7	S. 50 42	13 S.
30	κ Geminor.	4	17 0 57	7 34 25.10	24 47 22.7	S. 43 45	3 S.
31	γ Cancri -	5	16 43 16	8 33 39.99	22 3 38.8	N. 9 42	50 N.
Sept. 2	η Leonis -	3.4	2 53 52	9 58 16.15	N. 17 34 10.3	S. 26 28	16 N.
3	ι Leonis -	4	11 4 28	11 15 15.60	N. 11 26 36.4	S. 73 52	33 S.
3	ξ ¹ Virginis -	5	20 15 36	11 36 43.03	9 10 53.0	S. 72 8	30 S.
3	ν Virginis -	4.5	20 31 12	11 37 19.27	7 27 37.1	N. 27 16	68 N.
4	π Virginis -	5	3 0 24	11 52 20.97	N. 7 32 26.5	S. 74 59	34 S.
6	κ Virginis -	4	12 47 14	14 4 3.21	S. 9 29 49.9	N. 63 19	81 N.
8	β ¹ Scorpii -	2	13 0 47	15 55 48.50	19 20 40.0	53 12	71 N.
8	ν Scorpii -	4	15 47 13	16 2 22.30	19 1 20.1	N. 6 40	36 N.
8	ψ Ophiuchi	5	20 51 37	16 14 24.83	S. 19 38 30.7	S. 3 27	26 N.
9	ω Ophiuchi	5	0 10 54	16 22 19.40	S. 21 6 11.6	N. 55 3	69 N.
10	ε ² Ophiuchi	5	0 44 42	17 21 18.81	23 49 36.0	N. 48 36	66 N.
10	b Sagittarii	5	12 29 10	17 49 40.26	23 47 33.8	S. 4 37	16 N.
11	λ Sagittarii	4	0 7 51	18 17 45.12	S. 25 30 16.7	N. 67 4	64 N.
11	s Sagittarii	6	7 10 0	18 34 38.88	S. 25 10 6.1	N. 37 38	58 N.
12	h ² Sagittarii	4.5	5 5 44	19 26 37.85	25 14 27.1	N. 57 52	65 N.
13	η Capricorni	5	20 9 55	20 54 59.18	20 30 11.1	S. 45 41	18 S.
14	ε Capricorni	5	11 31 30	21 27 48.98	S. 20 12 6.9	N. 52 13	70 N.
14	κ Capricorni	5	14 12 2	21 33 25.19	S. 19 36 54.8	N. 39 24	70 N.
16	ψ ² Aquarii -	5	14 33 35	23 9 18.76	10 4 59.1	S. 43 15	5 S.
16	ψ ³ Aquarii -	5	15 6 53	23 10 21.71	10 30 45.3	S. 11 8	27 N.
17	r Piscium -	4.5	14 19 58	23 53 29.10	S. 6 55 54.7	N. 47 59	83 N.
17	s Piscium -	5	16 11 16	23 56 52.59	S. 6 37 54.3	N. 52 28	83 N.
19	ν Piscium -	5	21 25 36	1 32 50.16	N. 4 38 57.8	29 45	75 N.
20	ξ ¹ Ceti -	5	14 43 23	2 4 14.85	8 4 8.2	30 26	77 N.
24	ι Tauri -	4.5	4 21 47	4 53 12.49	N. 21 20 50.2	N. 39 31	90 N.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀	At Greenwich Mean Time of ♄			Limiting Parallels.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.						♄	Latitude.
Sept. 25	B Tauri - -	5	h m s 1 1 2	h m s 5 38 51.46	o i u N. 24 30 16.4	S. 45 32	7 S. 65 S.
25	H Geminor.	5	7 41 53	5 54 3.23	23 15 55.5	N. 52 5	90 N. 32 N.
26	ε Geminor.	3	0 46 11	6 33 44.16	25 17 16.3	S. 35 36	4 N. 56 S.
27	κ Geminor.	4	2 7 40	7 34 25.91	N. 24 47 21.0	S. 30 0	11 N. 50 S.
28	γ Cancri -	5	2 28 2	8 33 40.68	N. 22 3 36.3	N. 21 31	64 N. 5 S.
29	η Leonis -	3.4	13 22 53	9 58 16.60	17 34 7.4	S. 18 39	24 N. 49 S.
30	ι Leonis -	4	21 52 47	11 15 15.84	11 26 34.0	71 7	29 S. 79 S.
Oct. 1	ξ ¹ Virginis -	5	7 4 20	11 36 43.21	N. 9 10 50.7	S. 70 59	28 S. 81 S.
1	ν Virginis -	4.5	7 19 54	11 37 19.45	N. 7 27 35.1	N. 28 23	69 N. 15 S.
1	π Virginis -	5	13 47 52	11 52 21.11	N. 7 32 24.5	S. 75 2	33 S. 82 S.
3	κ Virginis -	4	22 33 53	14 4 3.03	S. 9 29 49.5	N. 53 39	81 N. 7 N.
5	β ¹ Scorpii -	2	21 12 24	15 55 48.11	S. 19 20 39.1	N. 38 47	68 N. 5 S.
5	ν Scorpii -	4	23 53 4	16 2 21.90	S. 19 1 19.3	S. 7 55	23 N. 48 S.
6	ψ Ophiuchi	5	4 46 59	16 14 24.40	19 38 30.0	S. 18 17	13 N. 59 S.
6	ω Ophiuchi	5	7 59 28	16 22 18.98	21 6 10.8	N. 40 3	67 N. 3 S.
7	b Ophiuchi	5.6	5 44 1	17 16 15.10	S. 24 0 52.8	N. 55 26	66 N. 15 N.
7	e ² Ophiuchi	5	7 45 55	17 21 18.34	S. 23 49 35.8	N. 32 55	56 N. 9 S.
7	b Sagittarii	5	19 10 23	17 49 39.78	23 47 33.8	S. 20 22	2 N. 63 S.
8	λ Sagittarii	4	6 31 25	18 17 44.63	25 30 17.1	N. 51 22	64 N. 12 N.
9	h ² Sagittarii	4.5	10 56 41	19 26 37.39	S. 25 14 28.4	N. 42 53	65 N. 3 N.
11	η Capricorni	5	1 43 2	20 54 58.84	S. 20 30 12.9	S. 58 38	34 S. 90 S.
11	φ Capricorni	6	6 54 10	21 6 12.22	21 19 59.9	N. 28 14	57 N. 12 S.
11	33 Capricorni	6	10 54 18	21 14 46.07	21 32 59.8	71 37	68 N. 52 N.
11	ε Capricorni	5	17 4 42	21 27 48.71	S. 20 12 8.8	N. 40 26	70 N. 0 N.
11	κ Capricorni	5	19 45 35	21 33 24.94	S. 19 36 56.6	N. 27 49	59 N. 13 S.
13	τ ² Aquarii -	5.6	5 25 8	22 40 50.04	14 27 45.7	N. 46 28	76 N. 6 N.
13	ψ ² Aquarii -	5	20 23 1	23 9 18.72	10 5 0.1	S. 49 51	12 S. 90 S.
13	ψ ² Aquarii -	5	20 56 34	23 10 21.68	S. 10 30 46.3	S. 17 41	21 N. 10 S.
14	r Piscium -	4.5	20 18 49	23 53 29.17	S. 6 55 55.2	N. 44 21	83 N. 3 N.
14	s Piscium -	5	22 10 46	23 56 52.67	S. 6 37 54.8	49 4	83 N. 9 N.
17	ν Piscium -	5	3 34 55	1 32 50.49	N. 4 38 59.0	33 18	81 N. 8 S.
17	ξ ¹ Ceti - -	5	20 52 0	2 4 15.25	N. 8 4 9.7	N. 36 4	87 N. 4 S.
21	ι Tauri - -	4.5	10 29 51	4 53 13.27	N. 21 20 51.3	N. 52 22	90 N. 28 N.
22	B Tauri - -	5	7 19 25	5 38 52.31	24 30 16.9	S. 31 51	8 N. 55 S.
22	H Geminor.	5	14 5 9	5 54 4.09	23 15 55.6	N. 65 58	90 N. 53 N.
23	ε Geminor.	3	7 25 42	6 33 45.05	N. 25 17 15.6	S. 21 22	19 N. 38 S.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Limit Parall.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
1834.			^h ^m ^s	^h ^m ^s	[°] ['] ["]	[°] ['] ["]	[°]
Oct. 24	κ Geminor.	4	9 21 25	7 34 26.80	N. 24 47 19.0	S. 15 39	25 N.
25	γ Cancri	5	10 24 44	8 33 41.50	22 3 33.2	N. 35 26	86 N.
26	η Leonis	3.4	22 31 16	9 58 17.28	17 34 3.3	S. 6 34	35 N.
28	ι Leonis	4	8 5 17	11 15 16.36	N. 11 26 29.7	S. 62 13	18 S.
28	ξ ¹ Virginis	5	17 32 17	11 36 43.67	N. 9 10 46.8	S. 63 15	18 S.
28	ν Virginis	4.5	17 48 16	11 37 19.91	7 27 31.4	N. 36 4	80 N.
29	π Virginis	5	0 26 1	11 52 21.55	N. 7 32 20.6	S. 68 13	24 S.
30	θ Virginis	6	17 51 54	13 26 53.59	S. 4 32 51.0	N. 3 2	43 N.
31	κ Virginis	4	9 47 0	14 4 3.14	S. 9 29 50.5	N. 51 46	81 N.
Nov. 2	β ¹ Scorpil	2	7 40 14	15 55 47.95	19 20 38.7	30 55	60 N.
2	ω ¹ Scorpil	4.5	8 11 35	15 57 6.77	20 12 46.3	N. 77 25	70 N.
2	ν Scorpil	4	10 16 39	16 2 21.73	S. 19 1 18.9	S. 16 3	16 N.
2	ψ Ophiuchi	5	15 2 25	16 14 24.21	S. 19 38 29.5	S. 26 54	6 N.
2	α Ophiuchi	5	18 9 20	16 22 18.76	21 6 10.2	N. 31 9	58 N.
3	ε ³ Ophiuchi	5	17 10 18	17 21 18.02	23 49 35.3	N. 22 15	44 N.
4	δ Sagittarii	5	4 11 21	17 49 39.40	S. 23 47 33.5	S. 31 40	8 S.
4	λ Sagittarii	4	15 8 55	18 17 44.22	S. 25 30 17.0	N. 39 34	60 N.
5	h ² Sagittarii	4.5	18 38 20	19 26 36.94	25 14 29.0	N. 30 17	49 N.
7	η Capricorni	5	8 25 20	20 54 58.42	20 30 14.5	S. 71 18	56 S.
7	ε Capricorni	5	23 30 58	21 27 48.31	S. 20 12 10.7	N. 28 4	58 N.
8	κ Capricorni	5	2 9 30	21 33 24.53	S. 19 36 58.7	N. 15 31	45 N.
9	τ ¹ Aquarii	6	10 32 27	22 38 56.34	14 55 34.0	52 44	75 N.
9	τ ² Aquarii	5.6	11 30 54	22 40 49.76	14 27 47.9	N. 35 32	74 N.
10	ψ ² Aquarii	5	2 26 28	23 9 18.48	S. 10 5 2.0	S. 59 55	25 S.
10	ψ ³ Aquarii	5	2 59 58	23 10 21.44	S. 10 30 48.3	S. 27 42	11 N.
11	τ Piscium	4.5	2 23 38	23 53 29.02	6 55 57.0	N. 36 1	82 N.
11	σ Piscium	5	4 15 53	23 56 52.52	S. 6 37 56.6	40 53	80 N.
13	ν Piscium	5	9 49 44	1 32 50.58	N. 4 38 58.6	N. 29 55	76 N.
14	ξ ¹ Ceti	5	3 7 32	2 4 15.43	N. 8 4 9.8	N. 34 20	84 N.
17	ι Tauri	4.5	16 18 20	4 53 13.90	21 20 51.9	N. 57 28	90 N.
18	B Tauri	5	12 59 37	5 38 53.06	24 30 17.1	S. 25 35	15 N.
19	ε Geminor.	3	13 1 8	6 33 45.90	N. 25 17 14.9	S. 14 1	27 N.
20	κ Geminor.	4	15 1 39	7 34 27.71	N. 24 47 16.9	S. 7 26	33 N.
21	γ Cancri	5	16 22 43	8 33 42.42	22 3 29.8	N. 44 10	90 N.
23	η Leonis	3.4	5 19 56	9 58 18.18	17 33 58.3	N. 2 16	43 N.
24	ι Leonis	4	16 3 10	11 15 17.13	N. 11 26 24.3	S. 54 15	10 S.

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

Dates.	Names.	Magnitudes.	Greenwich Mean Time of Apparent \odot in R. A. of ζ and \ast .		At Greenwich Mean Time of \odot			Limiting Parallels.
			Apparent R. A. of ζ and \ast .		Apparent Declination of \ast .		Diff. of Apparent Dec. of ζ and \ast .	
1834.			$^{\text{h}}$ $^{\text{m}}$ $^{\text{s}}$	$^{\text{h}}$ $^{\text{m}}$ $^{\text{s}}$	$^{\circ}$ $'$ $''$	$^{\circ}$ $'$ $''$	$^{\circ}$ $'$ $''$	Latitude.
Nov. 25	ξ^1 Virginis -	5	1 51 51	11 36 44.43	N. 9 10 41.3	S. 55 43	11 S. 81 S.	
25	ν Virginis -	4.5	2 8 26	11 37 20.66	7 27 26.1	N. 43 35	90 N. 0 S.	
25	π Virginis -	5	9 1 35	11 52 22.25	N. 7 32 15.3	S. 61 3	16 S. 82 S.	
27	η^1 Virginis -	6	17 39 48	13 57 57.01	S. 8 31 3.8	N. 35 48	76 N. 10 S.	
27	κ Virginis -	4	20 19 35	14 4 3.59	S. 9 29 53.3	N. 54 37	81 N. 8 N.	
29	β^1 Scorpii -	2	18 49 50	15 55 48.15	19 20 39.2	30 4	59 N. 14 S.	
29	ω^1 Scorpii -	4.5	19 21 13	15 57 6.98	20 12 46.7	N. 76 32	70 N. 44 N.	
29	ν Scorpii -	4	21 26 20	16 2 21.91	S. 19 1 19.5	S. 17 5	16 N. 8 S.	
30	ψ Ophiuchi -	5	2 11 43	16 14 24.38	S. 19 38 30.0	S. 28 15	5 N. 71 S.	
30	ω Ophiuchi -	5	5 18 0	16 22 18.91	21 6 10.4	N. 29 34	56 N. 14 S.	
Dec. 1	ϵ^1 Ophiuchi -	5	4 5 24	17 21 18.02	23 49 34.9	N. 19 18	41 N. 23 S.	
1	b Sagittarii -	5	14 55 2	17 49 39.34	S. 23 47 33.2	S. 35 10	11 S. 84 S.	
2	λ Sagittarii -	4	1 38 41	18 17 44.10	S. 25 30 16.5	N. 35 36	54 N. 7 S.	
3	h^2 Sagittarii -	4.5	4 25 3	19 26 36.69	25 14 28.9	25 23	43 N. 16 S.	
5	ϵ Capricorni -	5	7 47 45	21 27 47.95	20 12 12.0	22 20	52 N. 19 S.	
5	κ Capricorni -	5	10 22 16	21 33 24.18	S. 19 37 0.0	N. 9 47	39 N. 31 S.	
7	ψ^2 Aquarii -	5	9 43 33	23 9 18.17	S. 10 5 4.1	S. 65 19	32 S. 90 S.	
7	ψ^1 Aquarii -	5	10 16 38	23 10 21.13	10 30 50.4	S. 33 5	6 N. 81 S.	
8	r Piscium -	4.5	9 27 9	23 53 28.76	6 55 59.1	N. 31 7	75 N. 11 S.	
8	s Piscium -	5	11 18 43	23 56 52.26	S. 6 37 58.7	N. 36 2	82 N. 6 S.	
10	ν Piscium -	5	16 49 17	1 32 50.48	N. 4 38 57.3	N. 26 40	71 N. 14 S.	
11	ξ^1 Ceti -	5	10 9 17	2 4 15.39	8 4 8.8	31 40	79 N. 8 S.	
14	ι Tauri -	4.5	23 4 36	4 53 14.30	21 20 52.2	57 12	90 N. 33 N.	
15	n Tauri -	5.6	6 23 30	5 9 21.32	N. 21 55 12.1	N. 66 32	90 N. 50 N.	
15	B Tauri -	5	19 31 32	5 38 53.58	N. 24 30 17.5	S. 25 30	15 N. 47 S.	
16	ϵ Geminor. -	3	19 13 1	6 33 46.56	25 17 14.6	S. 13 39	27 N. 29 S.	
17	m Geminor. -	6	7 20 41	7 2 24.22	24 23 53.0	N. 40 19	90 N. 23 N.	
17	κ Geminor. -	4	20 51 28	7 34 28.50	N. 24 47 15.5	S. 6 54	34 N. 25 S.	
18	μ^1 Cancri -	6	6 8 54	7 56 31.01	N. 23 6 4.5	N. 62 53	90 N. 44 N.	
18	γ Cancri -	5	21 55 33	8 33 43.29	22 3 27.0	44 45	90 N. 18 N.	
20	η Leonis -	3.4	10 46 9	9 58 19.10	17 33 53.7	2 43	44 N. 30 S.	
20	δ^2 Leonis -	6	17 19 14	10 12 56.69	N. 15 48 27.0	N. 37 1	86 N. 0 N.	
21	ι Leonis -	4	21 51 23	11 15 18.03	N. 11 26 18.7	S. 54 5	10 S. 79 S.	
22	ξ^1 Virginis -	5	7 51 42	11 36 45.32	9 10 35.5	S. 55 39	11 S. 81 S.	
22	ν Virginis -	4.5	8 8 40	11 37 21.55	7 27 20.3	N. 43 39	90 N. 0 N.	
22	π Virginis -	5	15 11 22	11 52 23.14	N. 7 32 9.5	S. 61 3	17 S. 82 S.	

ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

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				Apparent R. A. of ♈ and ♉.	Apparent Declination of ♉.	Diff. of Apparent Dec. of ♈ and ♉.	
1834.						♈	Latitude.
Dec. 25	♋ Virginis -	4	h m s	h m s	S. ° ' "	N. ° ' "	° N. ° N.
27	♏ Scorpii -	.2	4 24 20	14 4 43.7	S. 9 29 57.9	N. 54 15	81 N. 9 N.
27	♏ Scorpii -	4.5	4 26 50	15 55 48.75	19 20 41.3	29 50	59 N. 14 S.
27	♏ Scorpii -	4.5	4 59 4	15 57 7.57	20 12 48.6	N. 76 19	70 N. 46 N.
27	♏ Scorpii -	4	7 7 31	16 2 22.49	S. 19 1 21.5	S. 17 17	15 N. 58 S.
27	♐ Ophiuchi	5	12 0 8	16 14 24.91	S. 19 38 31.7	S. 28 24	4 N. 72 S.
27	♐ Ophiuchi	5	15 10 52	16 22 19.43	21 6 11.8	N. 29 27	56 N. 14 S.
28	♐ Ophiuchi	5	14 23 25	17 21 18.40	23 49 35.3	N. 19 31	41 N. 22 S.
29	♐ Sagittarii	5	1 20 9	17 49 39.66	S. 23 47 33.4	S. 34 46	11 S. 83 S.
29	♐ Sagittarii	4	12 7 37	18 17 44.34	S. 25 30 16.2	N. 36 11	55 N. 6 S.
30	♐ Sagittarii	4.5	14 50 32	19 26 36.75	S. 25 14 28.4	N. 26 34	44 N. 13 S.

The preceding Table contains,

- 1.—The *Apparent* Places, at Greenwich Mean Midnight, of the fixed Stars to the 6th magnitude inclusive, the Occultations of which will be *visible* at Greenwich.
- 2.—The *Apparent* Places of all Stars to the 5th magnitude inclusive, the Occultations of which will be visible at *some* part of the Earth.
- 3.—The Greenwich Mean Time at which the Moon, to an observer at the centre of the Earth, would *appear* to have the same Right Ascension as the Star.
- 4.—The Difference of Declination and Position of the Moon, as it would *appear* with respect to the Star, at the instant of Conjunction in Right Ascension.
- 5.—The Parallels of Latitude *beyond* which the Star cannot be occulted by the Moon.—Between the limits here given there will certainly be an Occultation: but whether it be visible or not at any given place must be determined by other considerations.

ECLIPSES OF THE SUN AND MOON.

IN the Year 1834, there will be three Eclipses of the Sun, and two of the Moon. The only Eclipse visible at Greenwich will be that of the Moon, on Dec. 15.

I.—*A partial Eclipse of the SUN, Jan. 9, 1834, invisible at Greenwich.*

Begins on the Earth generally at 9^h 16^m.8 Mean Time at Greenwich.

Longitude 100° 31' E. of Greenwich. Latitude 52° 43' S.

Greatest Eclipse (5.3 digits) 10^h 55^m.7.

Longitude 11° 7' E. of Greenwich. Latitude 67° 47' S.

Ends on the Earth generally at 12^h 34^m.6.

Longitude 69° 25' W. of Greenwich. Latitude 48° 33' S.

This Eclipse is visible only in the Southern part of the Pacific Ocean, and the Southern extremity of South America.

II.—*A partial Eclipse of the SUN, June 6—7, 1834, invisible at Greenwich.*

Begins on the Earth generally June 6^d 19^h 57^m.0 Mean Time at Greenwich.

Longitude 2° 41' W. of Greenwich. Latitude 47° 44' S.

Greatest Eclipse (11.2 digits) June 6^d 22^h 8^m.5.

Longitude 54° 53' E. of Greenwich. Latitude 64° 30' S.

Ends on the Earth generally June 7^d 0^h 20^m.0.

Longitude 72° 19' E. of Greenwich. Latitude 27° 32' S.

Visible in the Southern part of Africa and the adjacent Seas.

At the Cape of Good Hope, the Eclipse

Begins June 6^d 21^h 20^m.9 } Mean Time at the Cape.
Ends - - - 23^h 57^m.4 }

Digits eclipsed 5.4 on the Southern limb.

III.—*A total Eclipse of the MOON, June 20, 1834, invisible at Greenwich.*

First contact with Penumbra, at	- -	17 ^h 31 ^m .8	} Mean Time at Greenwich.
First contact with dark Shadow,	- -	18 32.3	
First total Immersion in dark Shadow,	19	36.6	
Middle of Eclipse, - - - - -	20	19.5	
Last total Immersion in dark Shadow,	21	2.4	
Last contact with dark Shadow, - - -	22	6.7	
Last contact with Penumbra, - - - -	23	7.2	
Digits eclipsed 16.7 on the Northern limb.			

At these times respectively the Moon will be in the zenith of the places whose positions are,

Longitude	84 17	} W. of Greenwich.	Latitude	23 33 S.
	98 50			23 36
	114 17			23 40
	124 36			23 43
	134 55			23 45
	150 22			23 48
	164 54			23 51 S.

IV.—*A total Eclipse of the SUN, Nov. 30, 1834, invisible at Greenwich.*

Begins on the Earth generally at 4^h 41^m.9 Mean Time at Greenwich.

Longitude 141° 2' W. of Greenwich. Latitude 43° 53' N.

Total Eclipse begins generally at 6^h 0^m.7.

Longitude 133° 50' W. of Greenwich. Latitude 62° 50' N.

Total Eclipse at Noon - - 6^h 33^m.0.

Longitude 101° 3' W. of Greenwich. Latitude 39° 50' N.

Total Eclipse ends generally - 7^h 52^m.3.

Longitude 49° 39' W. of Greenwich. Latitude 39° 39' N.

Ends on the Earth generally - 9^h 11^m.1.

Longitude 57° 26' W. of Greenwich. Latitude 17° 27' N.

The Southern limit of this Eclipse, or the line traversed by the Southern edge of the Penumbra, passes over the places,

Longitude	154 35	} W. of Greenwich.	Latitude	28 10 N.
	119 14			6 48 N.
	101 17			5 19 S.
	92 10			7 15
	80 33			7 46
	50 30			0 7 S.
	42 23			2 46 N.

The centre of the Shadow, or the axis of its cone, passes over the places,

Longitude	133 50	} W. of Greenwich.	Latitude	62 50 N.
	118 10			52 31
	109 36			45 56
	104 4			41 51
	99 34			38 48
	95 31			36 27
	91 39			34 37
	87 43			33 16
	83 31			32 25
	78 46			32 6
	72 51			32 33
	63 57			34 32
	49 39			39 39 N.

REPRESENTATION OF THE PRINCIPAL LINES FOR THE
SOLAR ECLIPSE OF NOVEMBER 30, 1834.



The *first* contact of the Moon's Penumbra with the Earth takes place at B, and the *partial* Eclipse then *first* commences.

The first contact of the Moon's Umbra with the Earth takes place at C, and the *central* and *total* Eclipse *first* begins.

The Moon's Umbra passes over the places situate on and near to the line CC', causing at each in succession a *total* Eclipse. The last contact of the Umbra with the Earth takes place at C', where the total Eclipse ends.

The southernmost point of the Penumbra comes on the Earth at L, and proceeds along the line LL', quitting the Earth at L'. To all places situate on the line LL', the limbs of the Sun and Moon will appear in contact. South of this line no Eclipse takes place. The Penumbra quits the Earth at E, where the *partial* Eclipse finally ends.

On the line LBP, the Eclipse begins at the instant the Sun rises. On PSL', it begins when the Sun sets. On LRP, it ends at Sun rise. On PEL, it ends at Sun set. The places on LCP have the middle of the Eclipse at Sun rise, and on PC'L' the middle of the Eclipse at Sun set.

V.—A partial Eclipse of the MOON, Dec. 15, 1834, visible at Greenwich.

		^h	^m	
First contact with Penumbra, at	14	0	3	} Mean Time at Greenwich.
First contact with dark Shadow,	15	18	8	
Middle of Eclipse, - - - - -	16	47	8	
Last contact with dark Shadow,	18	16	8	
Last contact with Penumbra, -	19	35	3	
Digits eclipsed 8 ¹ on the Southern limb.				

At these times respectively the Moon will be in the zenith of the places whose positions are,

Longitude	[°] 32 ['] 42	} W. of Greenwich.	Latitude	[°] 23 ['] 41 N.
	51 41			23 47
	73 8			23 53
	94 38			24 0
	113 32			24 5 N.

ELEMENTS OF THE ECLIPSES OF THE SUN.

1834.	January 9.	June 6.	November 30.
Greenwich Mean Time of \odot in R. A.	^h 10 ^m 48 ^s 51 ⁰	^h 21 ^m 44 ^s 31 ⁰	^h 6 ^m 32 ^s 55 ⁶
\odot 's Declination - - - - -	S. 23 17 0 ⁸	N. 21 45 5 ⁸	S. 20 48 12 ⁷
\odot 's Declination - - - - -	S. 22 4 18 ⁴	N. 22 44 3 ⁶	S. 21 41 4 ⁶
\odot 's Horary Motion in R. A. - -	34 23 ⁶	33 57 ³	38 21 ⁹
\odot 's Horary Motion in R. A. - -	2 43 ³	2 34 ⁷	2 41 ⁷
\odot 's Horary Motion in Declination -	N. 1 40 ²	N. 6 12 ³	S. 9 12 ³
\odot 's Horary Motion in Declination -	N. 21 ⁶	N. 14 ⁹	S. 24 ³
\odot 's Equatorial Horizontal Parallax	55 43 ⁴	56 11 ³	60 22 ⁷
\odot 's Equatorial Horizontal Parallax	8 ⁷	8 ³	8 ⁷
\odot 's True Semidiameter - - - -	15 11 ¹	15 18 ⁷	16 27 ⁰
\odot 's True Semidiameter - - - -	16 17 ¹	15 46 ⁴	16 14 ⁸

ELEMENTS OF THE ECLIPSES OF THE MOON.

1834.	June 20.	December 15.
Greenwich Mean Time of Eclipse δ - -	^h 20 ^m 22 ^s 18 ⁸	^h 16 ^m 55 ^s 0 ⁶
δ 's Horary Motion in Longitude - - -	34 9 ⁷	31 14 ⁷
\odot 's Horary Motion in Longitude - - -	2 23 ⁰	2 32 ⁶
δ 's Latitude - - - - -	S. 15 9 ²	N. 34 55 ³
δ 's Horary Motion in Latitude - - -	S. 3 9 ²	N. 2 52 ³
δ 's Equatorial Horizontal Parallax - -	58 5 ⁸	55 29 ⁹
\odot 's Equatorial Horizontal Parallax - -	8 ⁴	8 ⁷
δ 's True Semidiameter - - - - -	15 49 ⁹	15 7 ³
\odot 's True Semidiameter - - - - -	15 45 ⁴	16 16 ⁷

MEAN TIME.

JANUARY.

MARCH.

d	h	m		°	'
1	23	47	♂♂♂ - - -	♂	3 8 S.
7	17	23	♀♂♂ - - -	♀	0 21 S.
7	17	59	♂♂♂ - - -	♂	1 18 S.
8	5	29	♀♂♂ - - -	♀	0 55 N.
8	6	17	♀♂♂ - - -	♀	0 10 S.
8	12	39	♀ in ☿		
9	-	-	☉ eclipsed invis.		
11	6	0	♀ in ☿		
11	22	32	♂♂♂ - - -	♂	3 7 N.
15	2	-	♀♂♂ Sagitt.	*	1 10 N.
16	1	-	♀♂♂ Sagitt.	*	1 47 N.
16	16	-	♂♂♂ Sagitt.	*	1 30 S.
16	22	9	♂♂♂		
17	10	30	♂♂♂ - - -	♂	4 3 N.
19	8	34	♂ Stationary.		
21	9	16	♀ in Aphelion.		
28	0	-	♂♂♂ Sagitt.	*	1 37 N.
29	6	39	♂♂♂ - - -	♂	2 54 S.
31	16	32	♀♂♀ - - -	♀	1 4 S.

FEBRUARY.

d	h	m		°	'
5	17	20	♂♂♂ - - -	♂	0 25 N.
7	12	58	♀♂♂ - - -	♀	2 3 N.
7	19	39	♀♂♂ - - -	♀	1 15 N.
8	8	37	♂♂♂		
8	8	38	♂♂♂ - - -	♂	3 11 N.
10	20	6	♀ greatest Hel. Lat. S.		
11	4	54	♂♂♂		
11	18	16	♀ in Aphelion.		
11	18	22	♀♂♂ - - -	♀	1 25 S.
13	0	58	♀ in Sup. ♂☉		
13	21	-	♀♂♂ Capricor.	*	1 24 S.
14	1	13	♂♂♂ - - -	♂	3 50 N.
15	7	-	♀♂♂ Capricor.	*	1 24 S.
15	23	12	♀♂♂		
16	1	3	♀♂♂ - - -	♀	0 36 N.
19	7	-	♀♂♂ Aquarii	*	0 48 S.
25	14	8	♂♂♂ - - -	♂	2 37 S.
27	13	-	♂♂♂ Capricor.	♂	0 2 S.

d	h	m		°	'
1	0	-	♀♂♂ Aquarii	*	1 7 N.
1	19	33	♀ in ☿		
6	8	54	♀ in Perihelion.		
6	9	11	♀ greatest Hel. Lat. S.		
6	17	33	♂♂♂ - - -	♂	2 5 N.
7	13	41	♀ in Sup. ♂☉		
7	17	43	♂♂♂ - - -	♂	3 20 N.
9	21	19	♀♂♂ - - -	♀	3 43 N.
11	6	8	♀ greatest elong.		18 22 E.
11	8	50	♀♂♂ - - -	♀	7 42 N.
13	18	10	♂♂♂ - - -	♂	3 28 N.
16	17	3	♀ greatest Hel. Lat. N.		
17	22	-	♂♂♂ Capricor.	*	1 28 S.
18	13	24	♀ Stationary.		
20	5	-	♂♂♂ Capricor.	*	1 29 S.
20	14	5	☉ ent. ☿, Spring commences.		
21	21	-	♂♂♂ Virginis	*	0 8 N.
23	22	44	♂♂♂ - - -	♂	0 32 N.
24	16	22	♀♂♀ - - -	♀	5 3 N.
24	22	12	♂♂♂ - - -	♂	2 30 S.
26	16	-	♂♂♂ Aquarii	*	0 54 S.
28	2	7	♂♂♂		
28	6	7	♀ in Inf. ♂☉		

APRIL.

d	h	m		°	'
4	2	3	♂♂♂ - - -	♂	3 34 N.
4	19	3	♂♂♂ - - -	♂	3 25 N.
6	23	48	♀♂♂ - - -	♀	6 6 N.
9	5	16	♀ in ☿		
9	7	46	♀♂♂ - - -	♀	3 53 N.
10	12	36	♂♂♂ - - -	♂	3 1 N.
10	21	43	♀ Stationary.		
11	10	-	♂♂♂ Aquarii	*	1 0 N.
19	8	31	♀ in Aphelion.		
21	5	42	♂♂♂ - - -	♂	2 35 S.
23	4	8	♀♂♂ - - -	♀	0 32 N.
25	2	24	♂ greatest Hel. Lat. S.		
25	6	30	♀ greatest elong.		27 6 W.

MEAN TIME.

MAY.

d	h	m		°	'
1	10	19	♄ ☿	- - -	♄ 3 49 N.
1	16	8	♀ in ☿		
3	22	9	♂ ☿	- - -	♂ 4 5 N.
6	2	24	♀ ☿	- - -	♀ 1 59 N.
8	8	8	♄ ☿	- - -	♄ 2 33 N.
9	3	5	♄ ☉		
9	17	32	♀ ☿	- - -	♀ 2 20 N.
9	19	20	♀ greatest Hel.	Lat. S.	
17	11	0	♄ ☐ ☉		
17	12	-	♀ ☉ ♌ Tauri	* 1 53 S.	
18	10	24	♂ in Perihelion.		
18	11	58	♄ ☿	- - -	♄ 2 49 S.
23	18	46	♀ ☉ ♌	- - -	♀ 0 4 S.
28	18	44	♄ ☿	- - -	♄ 3 59 N.
28	18	49	♀ in ☿		
31	13	38	♄ Stationary.		

JUNE.

d	h	m		°	'
1	19	10	♀ in Sup. ☉ ☉		
2	2	22	♂ ☿	- - -	♂ 3 53 N.
2	8	9	♀ in Perihelion.		
4	3	0	♀ in Perihelion.		
5	4	27	♄ ☿	- - -	♄ 2 4 N.
5	8	-	♀ ☉ ♌ Geminor.	* 0 44 N.	
6	-	-	☉ eclips., invis. at Greenwich.		
6	5	9	♄ Stationary.		
7	11	49	♀ ☿	- - -	♀ 1 46 N.
8	21	35	♀ ☿	- - -	♀ 0 1 N.
12	5	-	♀ ☉ ♌ Geminor.	* 1 43 S.	
12	16	20	♀ greatest Hel.	Lat. N.	
14	17	46	♄ ☿	- - -	♄ 3 0 S.
16	20	-	♀ ☉ ♌ Geminor.	* 1 29 N.	
20	-	-	☉ eclips., invis. at Greenwich.		
21	11	12	☉ enters ♊. Summer comm.		
25	2	50	♄ ☿	- - -	♄ 3 58 N.
25	23	44	♄ ☐ ☉		
26	3	53	♀ greatest Hel.	Lat. N.	
28	11	-	♀ ☉ ♌ Canceri	* 1 30 N.	
28	18	-	♀ ☉ ♌ Canceri	* 1 42 S.	

JULY.

d	h	m		°	'
1	6	9	♂ ☿	- - -	♂ 2 52 N.
2	17	-	☉ in Apogee.		
3	0	48	♄ ☿	- - -	♄ 1 32 N.
6	4	31	♀ in ☿		
7	17	22	♀ greatest elong.	26 20 E.	
8	8	7	♀ ☿	- - -	♀ 4 16 S.
8	18	23	♀ ☿	- - -	♀ 2 29 S.
12	0	47	♄ ☿	- - -	♄ 3 3 S.
16	7	47	♀ in Aphelion.		
16	10	-	♀ ☉ ♌ Leonis	* 1 11 S.	
16	12	-	♄ ☉		
21	17	2	♀ Stationary.		
22	9	51	♄ ☿	- - -	♄ 3 51 N.
29	5	-	♀ ☉ ♌ Leonis	* 0 9 N.	
30	7	23	♂ ☿	- - -	♂ 1 27 N.
30	19	53	♄ ☿	- - -	♄ 0 58 N.

AUGUST.

d	h	m		°	'
1	21	-	♄ ☉ ♌ Tauri	* 1 47 S.	
1	22	-	♀ ☉ ♌ Leonis	* 0 42 N.	
4	13	52	♀ in Inf. ☉ ☉		
4	14	16	♀ ☿	- - -	♀ 8 43 S.
5	18	38	♀ greatest Hel.	Lat. S.	
7	10	40	♀ ☿	- - -	♀ 4 41 S.
8	10	37	♄ ☿	- - -	♄ 2 58 S.
8	21	-	♀ ☉ ♌ Virginis	* 0 2 S.	
11	18	14	♂ ☉ ♌	- - -	♂ 0 7 N.
14	17	16	♀ Stationary.		
15	21	-	♀ ☉ ♌ Virginis	* 1 8 N.	
17	13	50	♄ ☉		
18	13	-	♄ ☉ ♌ Virginis	* 0 34 N.	
18	15	19	♄ ☿	- - -	♄ 3 45 N.
21	5	25	♀ in ☿		
21	9	52	♀ ☉ ♌	- - -	♀ 2 29 N.
22	4	-	♂ ☉ ♌ Tauri	* 0 40 S.	
22	11	11	♀ greatest elong.	18 22 W.	
24	18	4	♀ in ☿		
27	11	50	♄ ☿	- - -	♄ 0 23 N.
28	3	58	♂ ☿	- - -	♂ 0 3 N.
29	7	25	♀ in Perihelion.		
31	15	-	♀ ☉ ♌ Virginis	* 1 26 S.	

MEAN TIME.

SEPTEMBER.

d	h	m		°	'
2	2	7	♂ ☿ - - -	♂	3 10 S.
3	1	22	♂ ☿ ☉		
4	13	-	♂ ☿ ζ Tauri	*	1 54 S.
4	23	51	♂ ☿ - - -	♂	2 48 S.
6	1	51	♀ ☿ - - -	♀	5 46 S.
8	15	35	♂ greatest Hel.	Lat. N.	
14	19	32	♂ ☿ - - -	♂	3 46 N.
16	15	22	♂ in Sup. ☉		
19	14	17	♂ in ♀		
23	1	7	☉ enters ♈. Autumn comm ^s .		
23	12	-	♂ ☿ μ Gemin.	*	0 56 S.
23	22	39	♂ ☿ - - -	♂	0 4 S.
24	12	0	♀ in Aphelion.		
25	18	2	♂ ☿ - - -	♂	1 0 S.
27	21	10	♂ ☿ ♀ - - -	♂	1 54 S.
28	17	42	♂ ☿ ☉		
30	5	44	♂ Stationary.		

OCTOBER.

d	h	m		°	'
2	3	46	♂ in ♀		
2	15	40	♂ ☿ - - -	♂	2 39 S.
3	4	10	♂ ☿ - - -	♂	4 50 S.
3	5	-	♂ ☿ ε Geminor.	*	1 43 N.
5	16	31	♀ ☿ - - -	♀	5 20 S.
7	1	10	♂ ☿ ☉		
7	4	-	♀ ☿ δ Scorp ⁱⁱ	*	1 28 N.
11	10	29	♀ greatest elong.	46 51 E.	
11	23	46	♂ ☿ - - -	♂	3 56 N.
12	0	-	♀ ☿ σ Scorp ⁱⁱ	*	0 20 S.
12	7	3	♂ in Aphelion.		
13	23	-	♀ ☿ α Scorp ⁱⁱ	*	0 46 S.
17	2	3	♂ greatest Hel.	Lat. S.	
21	3	26	♂ ☿ - - -	♂	0 14 S.
22	23	-	♂ ☿ θ Virginis	*	0 32 S.
23	23	-	♂ ☿ δ Geminor.	*	1 10 S.
23	23	4	♂ ☿ - - -	♂	1 25 S.
25	7	-	♀ ☿ A Oph.	*	0 49 N.
30	8	13	♂ ☿ - - -	♂	2 31 S.

NOVEMBER.

d	h	m		°	'
1	16	39	♂ Stationary.		
1	17	59	♂ greatest Hel.	Lat. S.	
2	4	54	♂ greatest elong.	23 26 E.	
2	10	27	♂ ☿ - - -	♂	4 16 S.
4	0	39	♀ ☿ - - -	♀	3 44 S.
8	5	49	♂ ☿ - - -	♂	4 9 N.
12	17	3	♂ Stationary.		
15	0	49	♂ ☿ ☉		
15	15	-	♀ at greatest brilliancy.		
17	3	42	♂ ☿ - - -	♂	0 2 S.
19	17	47	♂ ☿ ☉		
20	14	58	♂ ☿ - - -	♂	0 52 S.
20	17	20	♂ in ♀		
23	2	0	♂ in Inf. ☉		
23	8	7	♂ Stationary.		
25	6	41	♂ in Perihelion.		
26	10	-	♂ ☿ κ Geminor.	*	0 43 N.
26	23	3	♂ ☿ - - -	♂	2 23 S.
28	18	43	♂ ☿ ☉		
29	8	7	♂ ☿ - - -	♂	0 17 N.
30	-	-	☉ eclips. invis. at Greenwich.		
30	1	-	♂ ☿ ε Tauri	*	1 45 S.
30	16	4	♀ Stationary.		

DECEMBER.

d	h	m		°	'
2	6	46	♀ ☿ - - -	♀	0 25 S.
2	13	19	♂ Stationary.		
5	14	46	♂ ☿ - - -	♂	4 17 N.
5	14	52	♂ greatest Hel.	Lat. N.	
11	1	18	♂ greatest elong.	21 10 W.	
12	8	51	♀ in ♀		
14	3	23	♂ ☿ - - -	♂	0 22 N.
15	-	-	☉ eclips., vis. at Greenwich.		
17	13	44	♂ ☿ - - -	♂	0 42 N.
18	15	-	♀ ☿ μ ¹ Sagitt.	*	0 45 N.
21	3	48	♀ in Inf. ☉		
21	18	30	☉ enters ♋. Winter comm ^s .		
24	10	20	♂ ☿ - - -	♂	2 8 S.
28	14	31	♂ ☿ - - -	♂	0 25 N.
28	21	10	♀ ☿ - - -	♀	4 43 N.
29	3	1	♂ in ♀		
30	17	39	♂ ☿ ♀ - - -	♂	4 32 S.

ELEMENTS FOR DETERMINING THE GEOCENTRIC POSITION,
MAGNITUDE, AND APPEARANCE OF SATURN'S RING.

Mean Noon.	<i>p.</i>	<i>a.</i>	<i>b.</i>	<i>l.</i>	<i>l'.</i>
1834.					
Jan. 1	—3° 8' 4"	40" 29	+6" 07	+ 8° 39' 8"	+ 6° 1' 4"
Feb. 10	3 8' 6"	43' 06	6' 33	8 27' 2"	6 36' 8"
Mar. 22	3 23' 4"	44' 57	5' 63	7 15' 4"	7 12' 1"
May 1	3 41' 1"	43' 72	4' 56	5 59' 6"	7 46' 9"
June 10	3 47' 8"	41' 20	4' 05	5 38' 4"	8 21' 6"
July 20	3 39' 0"	38' 49	4' 34	6 28' 8"	8 55' 9"
Aug. 29	3 17' 0"	36' 62	5' 23	8 12' 2"	9 29' 9"
Oct. 8	2 47' 0"	35' 98	6' 43	10 18' 1"	10 3' 6"
Nov. 17	2 15' 6"	36' 69	7' 78	12 14' 3"	10 36' 9"
Dec. 27	1 51' 3"	38' 66	9' 04	13 31' 5"	11 9' 9"
31	—1 49' 6"	38' 92	+9' 15	+13 36' 1"	+11 13' 2"

p . . . denotes the inclination of the Northern semi-minor axis of the Ring to the circle of Declination; + East, — West.

a . . . the *major* axis of the Ring.

b . . . the *minor* axis; + North surface visible,
— South surface visible.

l . . . the elevation of the Earth above the plane of the Ring, as seen from Saturn; + North, — South.

l' . . . the elevation of the Sun above the plane of the Ring, as seen from Saturn; + North, — South.

These Elements are founded upon the following determinations of
BESSEL and STRUVE.

Let Ω represent the mean Longitude of the Ring's ascending Node, at the time *t*,
i, its mean inclination to the Ecliptic.

a, the major axis of the Ring at the planet's mean distance.

Then, $\Omega = 166^\circ 50' 41'' + 40'' \cdot 65 (t - 1800)$ } (*Astron. Jahr.* 1829, p. 175.)
 $i = 28^\circ 22' 1'' - 0'' \cdot 38 (t - 1800)$ }
 $40'' \cdot 095$ (*Astron. Nach.* N° 139, p. 392.)

TABLE,

SHOWING THE MEAN TIME OF THE GREATEST LIBRATION OF THE MOON'S APPARENT DISC.

1834.	d	h	m	
Jan.	6	22	10	N. W.
	20	22	42	N. E.
Feb.	2	12	15	N. E.
	18	4	20	N. E.
Mar.	2	8	26	N. W.
	18	10	54	N. E.
	30	14	7	N. W.
Apr.	15	12	11	N. E.
	27	20	12	N. W.
May	12	21	31	S. E.
	25	21	41	S. W.
June	8	6	18	N. E.
	22	13	29	S. W.
July	5	0	55	N. E.
	19	12	2	S. W.
Aug.	1	14	14	N. E.
	14	19	23	N. W.
	29	14	12	N. E.
Sept.	10	23	46	N. W.
	26	19	35	S. E.
Oct.	9	1	0	S. W.
	25	1	31	S. E.
Nov.	6	4	53	S. W.
	21	23	55	S. E.
Dec.	4	10	55	S. W.
	18	19	11	S. E.

The Moon's Libration is here supposed to take place in the plane of her Orbit:—and by the time of the greatest Libration of her Apparent Disc is to be understood the instant at which, to an observer at the centre of the Earth, the variation of the Disc from its mean state has attained its maximum.

The right-hand column indicates the quadrant of the Moon's Disc in which the Libration takes place, and in which the greatest change of the Moon's surface will become visible.

TABLE,

SHOWING THE ILLUMINATED PORTION OF THE DISCS OF VENUS AND MARS.

DATE.	VENUS.	MARS.
Jan. 15	0·978	0·984
Feb. 14	0·996	0·969
Mar. 15	1·000	0·953
Apr. 15	0·986	0·934
May 15	0·953	0·915
June 15	0·896	0·897
July 15	0·820	0·882
Aug. 15	0·724	0·871
Sept. 15	0·610	0·867
Oct. 15	0·469	0·879
Nov. 15	0·261	0·920
Dec. 15	0·014	0·983

The numbers given in this Table represent the versed sines of the illuminated portion of the Discs, the Diameters of the Planets being considered as *unity*.

MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

Days of the Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
	h	m	h	m	h	m	h	m	h	m	h	m
1	6	32	19	1	7	34	19	58	6	11	18	30
2	7	29	19	55	8	24	20	57	6	54	19	11
3	8	23	20	52	9	37	22	17	7	41	20	15
4	9	23	21	55	11	0	23	39	8	52	21	41
5	10	28	23	1	—	12	17	10	36	23	21	0
6	11	37	—	—	0	46	13	14	—	12	5	1
7	0	7	12	32	1	37	13	57	0	33	12	58
8	0	58	13	22	2	23	14	42	1	23	13	47
9	1	43	14	8	3	1	15	20	2	6	14	25
10	2	29	14	51	3	35	15	51	2	43	14	59
11	3	10	15	29	4	10	16	24	3	14	15	27
12	3	48	16	10	4	43	16	59	3	42	15	55
13	4	31	16	53	5	13	17	28	4	11	16	25
14	5	12	17	32	5	44	17	59	4	40	16	53
15	5	51	18	8	6	17	18	28	5	3	17	18
16	6	31	18	49	6	44	19	5	5	36	17	49
17	7	6	19	27	7	23	19	50	6	4	18	25
18	7	50	20	10	8	17	20	51	6	45	19	9
19	8	34	21	2	9	35	22	21	7	33	20	16
20	9	25	22	1	11	8	23	49	9	9	22	12
21	10	36	23	12	—	12	25	10	58	23	36	0
22	11	45	—	—	0	55	13	22	—	12	16	1
23	0	15	12	43	1	52	14	19	0	46	13	14
24	1	9	13	35	2	44	15	7	1	39	14	3
25	2	2	14	29	3	29	15	51	2	26	14	48
26	2	53	15	18	4	13	16	37	3	7	15	29
27	3	44	16	12	4	56	17	16	3	48	16	9
28	4	37	16	57	5	36	17	53	4	26	16	43
29	5	20	17	48	—	—	—	—	5	4	17	26
30	6	9	18	32	—	—	—	—	5	42	18	3
31	6	55	19	13	—	—	—	—	6	22	18	47

If the time of High Water be required, according to the *civil* mode of reckoning

1. *For the Morning Tide:*—With the day of the month *preceding* the given date take the time opposite thereto from the 2nd column of the month, and diminish it 12 hours.

2. *For the Afternoon Tide:*—With the given date, take the time opposite thereto from the 1st column of the month.

MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

Days of the Month.	JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.	
	h	m	h	m	h	m	h	m	h	m	h	m
1	9	53	22	19	10	50	23	23	0	9	12	37
2	10	48	23	13	11	56	—	—	1	5	13	34
3	11	44	—	—	0	27	12	54	2	3	14	26
4	0	8	12	33	1	21	13	52	2	50	15	9
5	0	53	13	13	2	13	14	41	3	31	15	51
6	1	36	13	59	3	3	15	25	4	15	16	35
7	2	22	14	47	3	47	16	12	4	53	17	10
8	3	9	15	28	4	34	16	57	5	27	17	46
9	3	55	16	19	5	18	17	43	6	7	18	26
10	4	44	17	14	6	7	18	25	6	49	19	12
11	5	39	18	6	6	43	19	2	7	47	20	28
12	6	31	18	58	7	23	19	46	9	14	22	7
13	7	23	19	46	8	19	20	59	11	3	23	47
14	8	11	20	40	9	38	22	27	—	12	19	—
15	9	8	21	37	11	11	23	50	0	43	13	13
16	10	15	22	52	—	12	25	—	1	38	13	59
17	11	27	—	—	0	55	13	20	2	15	14	37
18	0	0	12	31	1	44	14	10	2	50	15	4
19	0	58	13	24	2	34	14	54	3	19	15	31
20	1	48	14	14	3	15	15	31	3	43	15	58
21	2	36	15	2	3	46	16	0	4	13	16	26
22	3	22	15	42	4	17	16	35	4	38	16	51
23	4	1	16	22	4	49	17	4	5	3	17	19
24	4	42	17	3	5	19	17	33	5	34	17	51
25	5	20	17	36	5	48	17	59	6	5	18	26
26	5	57	18	13	6	13	18	30	6	50	19	18
27	6	32	18	52	6	46	19	5	7	57	20	46
28	7	12	19	30	7	28	19	57	9	44	22	34
29	7	48	20	5	8	33	21	17	11	14	23	48
30	8	33	21	4	10	6	22	52	—	12	25	—
31	9	39	22	12	11	34	—	—	0	30	12	54
									1	15	13	35

Example:—Required the Mean Time of High Water, at London Bridge, for the Morning and Afternoon of Jan. 13, 1834.

1. Opposite the day preceding, viz. 12, and, in the 2nd column, under January, is 16^h 10^m, which being diminished by 12^h gives 4^h 10^m for the Time of High Water in the Morning.

2. Opposite the given date, and in the 1st column, under January, is 4^h 31^m, which is the Time of High Water in the Afternoon.

TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON
AT THE UNDERMENTIONED PORTS AND PLACES.

PLACE.	SITUATION.	Time of High Water.	PLACE.	SITUATION.	Time of High Water.
		h m			h m
Aberdeen - -	Scotland - -	0 45	Chatham - - -	England - -	1 10
Aberdovy - -	Wales - - -	7 30	Cherbourg - -	France - - -	7 30
Aberistwith -	Wales - - -	7 30	Chester Bar - -	England - -	10 40
Achill Head -	Ireland - - -	6 0	Chichester Harbour	England - -	11 10
Agnes (St.) -	Scilly Isles -	4 40	Christchurch Harbour	England - -	8 40
Air Point - -	Isle of Man -	10 30	Clear Cape - -	Ireland - - -	4 40
Aldborough -	England - - -	10 45	Cork Harbour - -	Ireland - - -	4 40
Alderney - -	English Channel	6 45	Cornwall Cape -	England - -	4 40
Alne River - -	England - - -	2 45	Cowes - - -	Isle of Wight	11 10
Amlwick Port	Anglesea - -	10 30	Cromartie - - -	Scotland - -	11 10
Antwerp - - -	Netherlands -	6 0	Cuckold's Point -	River Thames	2 40
Arran Isle - -	Scotland - - -	11 15	Cuxhaven - - -	Germany - -	1 10
Arundel - - -	England - - -	9 20			
Balta - - -	Shetland - - -	3 0	Dartmouth Harbour	England - -	6 40
Baltimore - -	Ireland - - -	3 45	Deal - - -	England - -	11 10
Banff - - -	Scotland - - -	11 30	Dee (River) - -	Scotland - -	0 40
Bantry Bay -	Ireland - - -	3 46	Dingle Bay - - -	Ireland - - -	3 40
Barmouth - -	Wales - - -	7 55	Donaghadee Pier	Ireland - -	9 40
Barnstaple Bar	England - - -	5 30	Donegal Bar - -	Ireland - -	10 40
Beachy (on Shore)	England - - -	9 45	Douglas's Harbour	Isle of Man -	10 40
Beachy (Offing)	England - - -	11 0	Dover Pier - - -	England - -	11 10
Beaumaris - -	Wales - - -	10 15	Downs - - -	England - -	11 10
Belfast - - -	Ireland - - -	10 5	Dublin Harbour -	Ireland - -	10 40
Berwick - - -	England - - -	2 15	Dudgeon Lights -	North Sea -	7 40
Blakeney Harbour	England - - -	6 50	Dunbar - - -	Scotland - -	2 40
Blythe - - -	England - - -	2 45	Duncansby Head	Scotland - -	10 40
Bolt Head - -	England - - -	5 55	Dundalk Bay - -	Ireland - -	10 40
Boston - - -	England - - -	7 15	Dundee - - -	Scotland - -	2 40
Boulogne - - -	France - - -	10 30	Dungarvon - - -	Ireland - -	4 40
Brassa Sound -	Shetland - -	10 0	Dungeness - - -	England - -	10 40
Bree Bank - -	North Sea - -	3 30	Dunkirk - - -	France - - -	11 10
Brest Harbour	France - - -	3 48	Eddystone - - -	English Chan.	5 40
Bridgewater - -	England - - -	6 45	Exmouth Bar - -	England - -	6 40
Bridlington - -	England - - -	4 30	Eyemouth - - -	Scotland - -	2 40
Bridport - - -	England - - -	6 45			
Brighton - - -	England - - -	10 5	Falmouth - - -	England - -	5 40
Brill - - -	Netherlands -	3 0	Flamboro' Head -	England - -	4 40
Bristol - - -	England - - -	6 45	Flatholm - - -	England - -	6 40
Buchan Ness -	Scotland - -	12 0	Flats (Kentish) -	England - -	11 10
Burnt Island -	Scotland - -	2 30	Flushing - - -	Netherlands -	1 10
			Foreland (North)	England - -	11 10
Cairston - - -	Orkneys - - -	9 0	Foreland (South)	England - -	11 10
Calais - - -	France - - -	11 30	Fowey - - -	England - -	5 40
Caldy Island -	W. C. of England	6 0			
Calf of Man -	St. Geo. Channel	10 30	Galloper - - -	River Thames	0 40
Cancalle Bay -	France - - -	7 0	Galloway (Mull)	Scotland - -	11 10
Cantire (Mull)	Scotland - -	9 0	Galway Bay - - -	Ireland - -	4 40
Cardigan Bar -	Wales - - -	7 0	Goree (West Gat.)	Holland - -	1 10
Carmarthen Bar	Wales - - -	6 30	Goodwyn (Back of)	Downs - - -	1 10
Carnarvon Bar	Wales - - -	9 0	Gravelines - - -	France - - -	11 10

TIDES.

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TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON, AT THE UNDERMENTIONED PORTS AND PLACES,

PLACE.	SITUATION.	Time of High Water.	PLACE.	SITUATION.	Time of High Water.
		h m			h m
Gravesend - -	England - -	1 30	Penzance - - -	England - -	4 30
Greenock - -	W. C. of Scotland	11 45	Plymouth Dock Yard	England - -	5 30
Guernsey Pier -	English Channel	6 0	Portland Race - -	England - -	9 15
Gunfleet - -	River Thames -	12 0	Portland Road - -	England - -	6 15
			Port Patrick - -	Scotland - -	11 0
Hartlepool - -	England - -	3 45	Portsmouth Dock Yd.	England - -	11 40
Harwich - -	England - -	11 30			
Hastings - -	England - -	10 36	Rathlin I., Church Bay	N. C. of Irel.	9 0
Havre de Grace	France - -	10 30	Ramsgate Harbour	England - -	11 20
Helen's (St.) -	England - -	11 45	Rye Harbour - -	England - -	10 40
Heligoland - -	German Ocean -	11 0			
Helvoetsluys -	Holland - -	2 0	Saltees - - -	Ireland - -	5 40
Holyhead Bay -	Wales - -	10 0	Scarborough - -	England - -	4 25
Horn Point - -	North Sea - -	12 0	Scilly Islands - -	England - -	4 40
Hull - -	England - -	6 0	Seaford - - -	England - -	10 15
Humber River -	England - -	5 15	Selsea Harbour - -	England - -	11 15
			Shannon Mouth - -	Ireland - -	3 45
Ipswich - -	England - -	12 0	Sheerness Dock Yard	England - -	12 0
Isle de Bas - -	France - -	3 17	Shields - - -	England - -	3 0
Jersey (St. Aubin's)	English Channel	6 0	Skerries - - -	Ireland - -	4 45
			Sligo Bay - - -	Ireland - -	6 45
Kenmare River	Ireland - -	3 30	Solebay - - -	England - -	10 30
Kentish Knock -	River Thames -	11 30	Southampton - -	England - -	11 40
King's Road - -	Bristol Channel	6 45	Spithead - - -	England - -	9 30
Kinsale Harbour	Ireland - -	4 30	Spurn Point - -	England - -	5 20
Kirkcudbright -	Scotland - -	11 15	St. Ives - - -	England - -	4 30
			St. Malo - - -	France - -	6 0
Land's End - -	England - -	4 30	Stromness - - -	Orkneys - -	10 30
Leith Pier - -	Scotland - -	2 20	Sunderland - -	England - -	3 0
Lerwick Harbour	Shetland - -	9 45	Swansea Bay - -	Wales - -	5 56
Lewis Islands -	Scotland - -	6 0	Swin - - -	River Thames	12 0
Liverpool - -	England - -	11 0			
London Bridge -	River Thames -	2 7	Tay Bar - - -	Scotland - -	1 45
Lough Carlingford	Ireland - -	11 0	Tees River - - -	England - -	3 30
			Texel Road - - -	Holland - -	7 45
Margate Pier - -	England - -	11 15	Torbay - - -	England - -	6 0
Milford Haven -	England - -	5 45	Tralee Bay - - -	Ireland - -	3 45
Montrose - -	Scotland - -	1 30	Tynemouth Bar - -	England - -	2 50
Morlaix - - -	N. C. of France	5 15			
Mount's Bay - -	England - -	4 40	Waterford Harbour	Ireland - -	5 50
			Wexford Harbour -	Ireland - -	7 30
Needles - - -	Isle of Wight -	8 56	Weymouth - - -	England - -	6 30
Newcastle - -	England - -	4 0	Whitby - - -	England - -	3 45
Newport - - -	Wales - -	6 45	Wicklow - - -	Ireland - -	9 0
Nieuport - - -	France - -	11 15	Wisbeach - - -	England - -	7 30
Nore Light - -	River Thames -	12 30	Wranger Ooz - - -	Holland - -	12 0
Orfordness - -	England - -	10 40	Yarmouth Roads -	England - -	8 40
Orkney Isles - -	Scotland - -	10 30	Yarmouth Sands -	England - -	10 30
Ostend - - -	Flanders - -	12 0	Yorkshire Coast -	England - -	6 0
Pentland Frith -	Scotland - -	10 30	Youghall - - -	Ireland - -	5 0

TABLE,
SHOWING THE CORRECTION REQUIRED ON ACCOUNT OF
SECOND DIFFERENCES,

In finding the Greenwich Time corresponding to a reduced Lunar Distance

Arguments:—Approximate Interval and Difference of Proportional Logarithms

Approximate Interval.		Difference of the Proportional Logarithms in the Ephemeris.																			
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
h	m	h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3
0	20	2	40	0	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5
0	30	2	30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	7
0	40	2	20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8
0	50	2	10	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8	9
1	0	2	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10
1	10	1	50	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	9	10	11
1	20	1	40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	10	11
1	30	1	30	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	11	12
		Difference of the Proportional Logarithms in the Ephemeris.																			
		46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	5	5	6
0	20	2	40	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10
0	30	2	30	8	8	9	9	9	10	10	10	11	11	12	12	12	13	13	13	14	14
0	40	2	20	10	10	11	11	12	12	13	13	13	14	14	15	15	16	16	16	17	17
0	50	2	10	12	12	13	13	14	14	15	15	16	16	16	17	17	18	19	19	20	20
1	0	2	0	13	13	14	14	15	16	16	17	17	18	18	19	19	20	21	21	22	22
1	10	1	50	14	14	15	15	16	17	17	18	18	19	19	20	21	21	22	22	23	23
1	20	1	40	14	15	15	16	17	17	18	19	19	20	20	21	21	22	23	23	24	24
1	30	1	30	14	15	16	16	17	18	18	19	19	20	21	21	22	23	23	24	25	25

The Correction given in this Table is to be *added* to the approximate Greenwich Time when the Proportional Logarithms in the Ephemeris are *decreasing*, and *subtracted* when they are *increasing*.

TABLES FOR DETERMINING THE LATITUDE BY OBSERVATIONS
OF THE POLE STAR OUT OF THE MERIDIAN.

TABLE I.

Containing the *First* Correction.*Argument* :—Sidereal Time of Observation.

Sidereal Time.	Correction.	Sidereal Time.	Sidereal Time.	Correction.	Sidereal Time.
^h ^m	^o ['] ["] ⁺	^h ^m	^h ^m	^o ['] ["] ⁺	^h ^m
0 0	— 1 31 12 +	12 0	6 0	— 0 24 43 +	18 0
10	1 32 12	10	10	0 20 43	10
20	1 33 1	20	20	0 16 41	20
30	1 33 39	30	30	0 12 36	30
40	1 34 7	40	40	0 8 31	40
50	1 34 24	50	50	0 4 24	50
1 0	1 34 30	13 0	7 0	— 0 0 16 +	19 0
10	1 34 25	10	10	+ 0 3 51 —	10
20	1 34 10	20	20	0 7 58	20
30	1 33 44	30	30	0 12 4	30
40	1 33 7	40	40	0 16 8	40
50	1 32 19	50	50	0 20 11	50
2 0	1 31 21	14 0	8 0	0 24 12	20 0
10	1 30 13	10	10	0 28 9	10
20	1 28 54	20	20	0 32 4	20
30	1 27 25	30	30	0 35 55	30
40	1 25 46	40	40	0 39 41	40
50	1 23 57	50	50	0 43 23	50
3 0	1 21 59	15 0	9 0	0 47 1	21 0
10	1 19 51	10	10	0 50 33	10
20	1 17 34	20	20	0 53 59	20
30	1 15 8	30	30	0 57 19	30
40	1 12 34	40	40	1 0 32	40
50	1 9 52	50	50	1 3 38	50
4 0	1 7 1	16 0	10 0	1 6 38	22 0
10	1 4 3	10	10	1 9 29	10
20	1 0 57	20	20	1 12 13	20
30	0 57 45	30	30	1 14 48	30
40	0 54 26	40	40	1 17 15	40
50	0 51 0	50	50	1 19 33	50
5 0	0 47 29	17 0	11 0	1 21 42	23 0
10	0 43 53	10	10	1 23 42	10
20	0 40 11	20	20	1 25 32	20
30	0 36 25	30	30	1 27 12	30
40	0 32 35	40	40	1 28 42	40
50	0 28 41	50	50	1 30 3	50
6 0	— 0 24 43 +	18 0	12 0	+ 1 31 12 —	24 0

TABLE II.

Containing the *Second* Correction, (*always to be added*).*Arguments* :—Sidereal Time and Approximate Latitude.

Sidereal Time.	Approximate Latitude.								Sidereal Time.
	0°	5°	10°	15°	20°	25°	30°	35°	
h m	' "	' "	' "	' "	' "	' "	' "	' "	h m
0 0	0 0	0 0	0 1	0 1	0 2	0 2	0 3	0 3	12 0
30	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	30
1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0
30	0 0	0 0	0 0	0 0	0 0	0 0	0 1	0 1	30
2 0	0 0	0 0	0 1	0 1	0 2	0 2	0 3	0 3	14 0
30	0 0	0 1	0 2	0 3	0 4	0 5	0 7	0 8	30
3 0	0 0	0 1	0 3	0 5	0 7	0 9	0 11	0 13	15 0
30	0 0	0 2	0 5	0 7	0 10	0 13	0 17	0 20	30
4 0	0 0	0 3	0 7	0 10	0 14	0 18	0 22	0 27	16 0
30	0 0	0 4	0 9	0 13	0 18	0 23	0 28	0 34	30
5 0	0 0	0 5	0 10	0 15	0 21	0 27	0 34	0 41	17 0
30	0 0	0 6	0 12	0 18	0 24	0 31	0 38	0 46	30
6 0	0 0	0 6	0 13	0 19	0 26	0 34	0 42	0 51	18 0
30	0 0	0 6	0 13	0 20	0 28	0 36	0 44	0 53	30
7 0	0 0	0 7	0 14	0 21	0 28	0 36	0 45	0 54	19 0
30	0 0	0 7	0 14	0 21	0 28	0 36	0 44	0 53	30
8 0	0 0	0 6	0 13	0 20	0 27	0 34	0 42	0 51	20 0
30	0 0	0 6	0 12	0 18	0 24	0 31	0 38	0 46	30
9 0	0 0	0 5	0 10	0 15	0 21	0 27	0 34	0 41	21 0
30	0 0	0 4	0 9	0 13	0 18	0 23	0 28	0 34	30
10 0	0 0	0 3	0 7	0 10	0 14	0 18	0 23	0 27	22 0
30	0 0	0 2	0 5	0 8	0 11	0 14	0 17	0 20	30
11 0	0 0	0 2	0 3	0 5	0 7	0 9	0 11	0 14	23 0
30	0 0	0 1	0 2	0 3	0 4	0 5	0 7	0 8	30
12 0	0 0	0 0	0 1	0 1	0 2	0 2	0 3	0 3	24 0

TABLE III.

Containing the *Third* Correction, (*always to be added*).*Arguments* :—Sidereal Time and Date.

Sidereal Time.	Jan. 1.	Feb. 1.	March 1.	April 1.	May 1.	June 1.	July 1.
h	' "	' "	' "	' "	' "	' "	' "
0	1 9	1 6	0 59	0 49	0 41	0 37	0 39
2	1 9	1 12	1 9	1 1	0 51	0 45	0 41
4	1 7	1 14	1 16	1 12	1 4	0 55	0 48
6	1 4	1 14	1 19	1 21	1 16	1 8	0 59
8	1 0	1 10	1 17	1 23	1 24	1 18	1 9
10	0 55	1 2	1 10	1 20	1 24	1 23	1 18
12	0 51	0 54	1 1	1 11	1 19	1 23	1 21
14	0 51	0 48	0 51	0 59	1 9	1 15	1 19
16	0 53	0 46	0 44	0 48	0 56	1 5	1 12
18	0 56	0 46	0 41	0 39	0 44	0 52	1 1
20	1 0	0 50	0 43	0 37	0 36	0 42	0 51
22	1 5	0 58	0 50	0 40	0 36	0 37	0 42
24	1 9	1 6	0 59	0 49	0 41	0 37	0 39

TABLES.

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TABLE II.

Containing the *Second* Correction, (*always to be added*).

Arguments :—Sidereal Time and Approximate Latitude.

Sidereal Time.	Approximate Latitude.								Sidereal Time.
	35°	40°	45°	50°	55°	60°	65°	70°	
h m	' "	' "	' "	' "	' "	' "	' "	' "	h m
0 0	0 3	0 4	0 5	0 6	0 7	0 9	0 12	0 15	12 0
30	0 1	0 1	0 1	0 2	0 2	0 2	0 3	0 4	30
1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0
30	0 1	0 1	0 1	0 2	0 2	0 2	0 2	0 3	30
2 0	0 3	0 4	0 5	0 6	0 7	0 9	0 11	0 14	14 0
30	0 8	0 9	0 11	0 13	0 15	0 19	0 24	0 31	30
3 0	0 13	0 16	0 19	0 23	0 28	0 34	0 42	0 53	15 0
30	0 20	0 24	0 29	0 34	0 41	0 50	1 2	1 19	30
4 0	0 27	0 33	0 39	0 46	0 55	1 7	1 23	1 46	16 0
30	0 34	0 41	0 49	0 58	1 10	1 25	1 48	2 14	30
5 0	0 41	0 49	0 58	1 10	1 22	1 41	2 8	2 40	17 0
30	0 46	0 56	1 6	1 19	1 34	1 55	2 25	3 2	30
6 0	0 51	1 1	1 13	1 27	1 44	2 6	2 39	3 19	18 0
30	0 53	1 4	1 17	1 31	1 49	2 13	2 48	3 30	30
7 0	0 54	1 5	1 18	1 33	1 51	2 15	2 50	3 34	19 0
30	0 53	1 4	1 17	1 31	1 49	2 13	2 48	3 31	30
8 0	0 51	1 1	1 13	1 27	1 45	2 7	2 39	3 20	20 0
30	0 46	0 56	1 7	1 19	1 34	1 56	2 26	3 3	30
9 0	0 41	0 49	0 59	1 10	1 23	1 42	2 9	2 41	21 0
30	0 34	0 41	0 49	0 59	1 11	1 26	1 49	2 16	30
10 0	0 27	0 32	0 39	0 47	0 56	1 8	1 24	1 48	22 0
30	0 20	0 24	0 29	0 35	0 41	0 50	1 2	1 20	30
11 0	0 14	0 17	0 20	0 23	0 28	0 34	0 42	0 54	23 0
30	0 8	0 10	0 12	0 14	0 16	0 20	0 25	0 32	30
12 0	0 3	0 4	0 5	0 6	0 7	0 9	0 12	0 15	24 0

TABLE III.

Containing the *Third* Correction, (*always to be added*).

Arguments :—Sidereal Time and Date.

Sidereal Time.	July 1.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Dec. 31.
h	' "	' "	' "	' "	' "	' "	' "
0	0 39	0 46	0 56	1 8	1 18	1 26	1 30
2	0 41	0 42	0 48	0 58	1 10	1 20	1 28
4	0 48	0 44	0 45	0 50	0 59	1 9	1 19
6	0 59	0 50	0 45	0 45	0 48	0 55	1 6
8	1 9	0 58	0 49	0 43	0 40	0 43	0 50
10	1 18	1 8	0 57	0 46	0 39	0 35	0 37
12	1 21	1 14	1 4	0 52	0 42	0 34	0 30
14	1 19	1 18	1 12	1 2	0 50	0 40	0 32
16	1 12	1 16	1 15	1 10	1 1	0 51	0 41
18	1 1	1 10	1 15	1 15	1 12	1 5	0 54
20	0 51	1 2	1 11	1 17	1 20	1 17	1 10
22	0 42	0 52	1			1 25	1 23
24	0 39	0 46	0 5			1 26	1 30

TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

HOURS.			MINUTES.			SECONDS.		
Hours of Mean Time.	Equivalents in Sidereal Time.		Minutes of Mean Time.	Equivalents in Sidereal Time.		Seconds of Mean Time.	Equivalents in Sidereal Time.	
	^h	^m ^s		^m ^s			^s	
1	1	0 9'8565	1	1 0'1643	31	31 5'0925	1	1'0027
2	2	0 19'7130	2	2 0'3286	32	32 5'2568	2	2'0055
3	3	0 29'5694	3	3 0'4928	33	33 5'4211	3	3'0082
4	4	0 39'4259	4	4 0'6571	34	34 5'5853	4	4'0110
5	5	0 49'2824	5	5 0'8214	35	35 5'7496	5	5'0137
6	6	0 59'1388	6	6 0'9857	36	36 5'9139	6	6'0164
7	7	1 8'9953	7	7 1'1499	37	37 6'0782	7	7'0192
8	8	1 18'8518	8	8 1'3142	38	38 6'2424	8	8'0219
9	9	1 28'7083	9	9 1'4785	39	39 6'4067	9	9'0246
10	10	1 38'5647	10	10 1'6428	40	40 6'5710	10	10'0274
11	11	1 48'4212	11	11 1'8070	41	41 6'7353	11	11'0301
12	12	1 58'2777	12	12 1'9713	42	42 6'8995	12	12'0329
13	13	2 8'1342	13	13 2'1356	43	43 7'0638	13	13'0356
14	14	2 17'9906	14	14 2'2998	44	44 7'2281	14	14'0383
15	15	2 27'8471	15	15 2'4641	45	45 7'3924	15	15'0411
16	16	2 37'7036	16	16 2'6284	46	46 7'5566	16	16'0438
17	17	2 47'5600	17	17 2'7927	47	47 7'7209	17	17'0465
18	18	2 57'4165	18	18 2'9569	48	48 7'8852	18	18'0493
19	19	3 7'2730	19	19 3'1212	49	49 8'0495	19	19'0520
20	20	3 17'1295	20	20 3'2855	50	50 8'2137	20	20'0548
21	21	3 26'9859	21	21 3'4498	51	51 8'3780	21	21'0575
22	22	3 36'8424	22	22 3'6140	52	52 8'5423	22	22'0602
23	23	3 46'6989	23	23 3'7783	53	53 8'7066	23	23'0630
24	24	3 56'5554	24	24 3'9426	54	54 8'8708	24	24'0657
			25	25 4'1069	55	55 9'0351	25	25'0685
			26	26 4'2711	56	56 9'1994	26	26'0712
			27	27 4'4354	57	57 9'3637	27	27'0739
			28	28 4'5997	58	58 9'5279	28	28'0767
			29	29 4'7640	59	59 9'6922	29	29'0794
			30	30 4'9282	60	60 9'8565	30	30'0821

TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

FRACTIONS OF SECONDS.

Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.
0.01	^s 0.01003	0.34	^s 0.34093	0.67	^s 0.67183
0.02	0.02006	0.35	0.35096	0.68	0.68186
0.03	0.03008	0.36	0.36099	0.69	0.69189
0.04	0.04011	0.37	0.37101	0.70	0.70192
0.05	0.05014	0.38	0.38104	0.71	0.71194
0.06	0.06016	0.39	0.39107	0.72	0.72197
0.07	0.07019	0.40	0.40110	0.73	0.73200
0.08	0.08022	0.41	0.41112	0.74	0.74203
0.09	0.09025	0.42	0.42115	0.75	0.75205
0.10	0.10027	0.43	0.43118	0.76	0.76208
0.11	0.11030	0.44	0.44120	0.77	0.77211
0.12	0.12033	0.45	0.45123	0.78	0.78214
0.13	0.13036	0.46	0.46126	0.79	0.79216
0.14	0.14038	0.47	0.47129	0.80	0.80219
0.15	0.15041	0.48	0.48131	0.81	0.81222
0.16	0.16044	0.49	0.49134	0.82	0.82225
0.17	0.17047	0.50	0.50137	0.83	0.83227
0.18	0.18049	0.51	0.51140	0.84	0.84230
0.19	0.19052	0.52	0.52142	0.85	0.85233
0.20	0.20055	0.53	0.53145	0.86	0.86235
0.21	0.21057	0.54	0.54148	0.87	0.87238
0.22	0.22060	0.55	0.55151	0.88	0.88241
0.23	0.23063	0.56	0.56153	0.89	0.89244
0.24	0.24066	0.57	0.57156	0.90	0.90246
0.25	0.25068	0.58	0.58159	0.91	0.91249
0.26	0.26071	0.59	0.59162	0.92	0.92252
0.27	0.27074	0.60	0.60164	0.93	0.93255
0.28	0.28077	0.61	0.61167	0.94	0.94257
0.29	0.29079	0.62	0.62170	0.95	0.95260
0.30	0.30082	0.63	0.63173	0.96	0.96263
0.31	0.31085	0.64	0.64175	0.97	0.97266
0.32	0.32088	0.65	0.65178	0.98	0.98268
0.33	0.33090	0.66	0.66181	0.99	0.99271

This TABLE is useful for the conversion of MEAN SOLAR into SIDEREAL Time.

Sidereal Time required = Sidereal Time at the preceding Mean Noon + the Equivalent to the given Mean Time.

EXAMPLE.—To convert 2^h 22^m 25^s.62 Mean Time at Greenwich, Jan. 2, 1834, into Sidereal Time.

Sidereal Time at the preceding Mean Noon, viz. January 2 18 46 34.02
 2^h 0^m 0^s }
 22 0 } The Table gives the Equivalent
 25 } Sidereal Intervals.
 0.62 }
 The Sum is the Sidereal Time required, 21 9 23.04

TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of
MEAN SOLAR Time.

HOURS.			MINUTES.			SECONDS.				
Hours of Sidereal Time.	Equivalents in Mean Time.		Minutes of Sidereal Time.	Equivalents in Mean Time.		Seconds of Sidereal Time.	Equivalents in Mean Time.			
	^h	^m ^s		^m ^s			^s	^s		
1	0	59 50.1704	1	0 59.8362	31	30 54.9214	1	0.9973	31	30.9154
2	1	59 40.3409	2	1 59.6723	32	31 54.7576	2	1.9945	32	31.9126
3	2	59 30.5113	3	2 59.5085	33	32 54.5937	3	2.9918	33	32.9099
4	3	59 20.6818	4	3 59.3447	34	33 54.4299	4	3.9891	34	33.9072
5	4	59 10.8522	5	4 59.1809	35	34 54.2661	5	4.9864	35	34.9045
6	5	59 1.0226	6	5 59.0170	36	35 54.1023	6	5.9836	36	35.9017
7	6	58 51.1931	7	6 58.8532	37	36 53.9384	7	6.9809	37	36.8990
8	7	58 41.3635	8	7 58.6894	38	37 53.7746	8	7.9782	38	37.8963
9	8	58 31.5340	9	8 58.5256	39	38 53.6108	9	8.9754	39	38.8935
10	9	58 21.7044	10	9 58.3617	40	39 53.4470	10	9.9727	40	39.8908
11	10	58 11.8748	11	10 58.1979	41	40 53.2831	11	10.9700	41	40.8881
12	11	58 2.0453	12	11 58.0341	42	41 53.1193	12	11.9672	42	41.8853
13	12	57 52.2157	13	12 57.8703	43	42 52.9555	13	12.9645	43	42.8826
14	13	57 42.3862	14	13 57.7064	44	43 52.7917	14	13.9618	44	43.8799
15	14	57 32.5566	15	14 57.5426	45	44 52.6278	15	14.9591	45	44.8772
16	15	57 22.7270	16	15 57.3788	46	45 52.4640	16	15.9563	46	45.8744
17	16	57 12.8975	17	16 57.2150	47	46 52.3002	17	16.9536	47	46.8717
18	17	57 3.0679	18	17 57.0511	48	47 52.1364	18	17.9509	48	47.8690
19	18	56 53.2384	19	18 56.8873	49	48 51.9725	19	18.9481	49	48.8662
20	19	56 43.4088	20	19 56.7235	50	49 51.8087	20	19.9454	50	49.8635
21	20	56 33.5792	21	20 56.5597	51	50 51.6449	21	20.9427	51	50.8608
22	21	56 23.7497	22	21 56.3958	52	51 51.4810	22	21.9399	52	51.8580
23	22	56 13.9201	23	22 56.2320	53	52 51.3172	23	22.9372	53	52.8553
24	23	56 4.0906	24	23 56.0682	54	53 51.1534	24	23.9345	54	53.8526
			25	24 55.9044	55	54 50.9896	25	24.9318	55	54.8499
			26	25 55.7405	56	55 50.8257	26	25.9290	56	55.8471
			27	26 55.5767	57	56 50.6619	27	26.9263	57	56.8444
			28	27 55.4129	58	57 50.4981	28	27.9236	58	57.8417
			29	28 55.2490	59	58 50.3343	29	28.9208	59	58.8389
			30	29 55.0852	60	59 50.1704	30	29.9181	60	59.8362

TABLE

for converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of MEAN SOLAR Time.

FRACTIONS OF SECONDS.

	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.
1	0°00997	0°34	0°33907	0°67	0°66817
2	0°01995	0°35	0°34904	0°68	0°67814
3	0°02992	0°36	0°35902	0°69	0°68812
4	0°03989	0°37	0°36899	0°70	0°69809
5	0°04986	0°38	0°37896	0°71	0°70806
6	0°05984	0°39	0°38894	0°72	0°71803
7	0°06981	0°40	0°39891	0°73	0°72801
8	0°07978	0°41	0°40888	0°74	0°73798
9	0°08975	0°42	0°41885	0°75	0°74795
0	0°09973	0°43	0°42883	0°76	0°75793
1	0°10970	0°44	0°43880	0°77	0°76790
2	0°11967	0°45	0°44877	0°78	0°77787
3	0°12965	0°46	0°45874	0°79	0°78784
4	0°13962	0°47	0°46872	0°80	0°79782
5	0°14959	0°48	0°47869	0°81	0°80779
6	0°15956	0°49	0°48866	0°82	0°81776
7	0°16954	0°50	0°49864	0°83	0°82773
8	0°17951	0°51	0°50861	0°84	0°83771
9	0°18948	0°52	0°51858	0°85	0°84768
0	0°19945	0°53	0°52855	0°86	0°85765
1	0°20943	0°54	0°53853	0°87	0°86762
2	0°21940	0°55	0°54850	0°88	0°87760
3	0°22937	0°56	0°55847	0°89	0°88757
4	0°23934	0°57	0°56844	0°90	0°89754
5	0°24932	0°58	0°57842	0°91	0°90752
6	0°25929	0°59	0°58839	0°92	0°91749
7	0°26926	0°60	0°59836	0°93	0°92746
8	0°27924	0°61	0°60833	0°94	0°93743
9	0°28921	0°62	0°61831	0°95	0°94741
0	0°29918	0°63	0°62828	0°96	0°95738
1	0°30915	0°64	0°63825	0°97	0°96735
2	0°31913	0°65	0°64823	0°98	0°97732
3	0°32910	0°66	0°65820	0°99	0°98730

This TABLE is useful for the conversion of SIDEREAL into MEAN SOLAR Time.
 Mean Solar Time required = Mean Time at the preceding Sidereal Noon + the Equivalent to the given Sidereal Time.

EXAMPLE.—To convert 21^h 9^m 23^s.04 Sidereal Time at Greenwich, Jan. 2, 1834, into Mean Time.

Mean Time at the preceding Sidereal Noon, viz. - - - - - January 1^d 5^h 16^m 30^s.54
 For Sidereal Intervals. { 21^h 9^m 23^s.04 } 20 56 33.58
 { 9 0 } 8 58.52
 { 23 } 22.94
 { 0.04 } .04
 The Sum is the Mean Time required, Jan. 2 2 22 25.62

LATITUDES AND LONGITUDES OF THE PRINCIPAL
OBSERVATORIES.

Place.	Latitude.	Longitude.	Place.	Latitude.	Longitude.
	° ' "	h m s		° ' "	h m s
Aberdeen -	+57 8 56	+0 8 23	Milan -	+45 28 2	-0 36 46.6
Abo -	+60 27 0	-1 29 9	Modena -	+44 38 35	-0 43 41
Altona -	+53 32 51	-0 39 46.6	Montpelier	+43 36 16	-0 15 31
Armagh -	+54 21 15	+0 26 30	Montauban	+44 0 55	-0 5 23
Bedford -	+52 8 48	-0 2 49	Moscow -	+55 45 45	-2 30 12
Berlin -	+52 31 45	-0 53 35.6	Munich -	+48 8 20	-0 46 26.5
Biggleswade	+52 5 24	+0 1 3	Naples -	+40 50 15	-0 57 5
Bremen -	+53 4 38	-0 35 15.6	Nicolæff -	+46 58 55	-2 8 1.4
Buda -	+47 29 44	-1 16 10	Oxford -	+51 45 40	+0 5 0
Bushy Heath	+51 37 44	+0 1 21	Padua -	+45 24 2	-0 47 31
Cadiz -	+36 32 0	+0 25 10	Palermo -	+38 6 44	-0 53 29
Cambridge	+52 12 53	-0 0 23.5	Paramatta	-33 48 45	-10 4 5
C.of G. Hope	-33 56 3	-1 13 55.8	Paris -	+48 50 14	-0 9 21.6
Cracow -	+50 3 50	-1 19 49.6	Pavia -	+45 10 47	-0 36 39
Dorpat -	+58 22 47	-1 46 55	Pekin -	+39 54 13	-7 45 51
Dublin -	+53 23 13	+0 25 14	Petersburgh	+59 56 23	-2 1 13
Edinburgh -	+55 56 42	+0 12 49	Portsmouth	+50 48 3	+0 4 24
Florence -	+43 46 41	-0 45 3.6	Prague -	+50 5 18	-0 57 42
Geneva -	+46 12 0	-0 24 38	St. Helena	-15 55 27	+0 22 57
Gotha -	+50 56 8	-0 42 56	St. Fernando	+36 27 45	+0 24 49
Göttingen -	+51 31 50	-0 39 46.6	Slough -	+51 30 20	+0 2 24
Greenwich -	+51 28 40	0 0 0	S. Kilworth	+52 25 51	+0 24 26
Kensington	+51 30 12	+0 0 46.8	Spire -	+49 18 55	-0 33 46
Kew -	+51 28 37	+0 1 3	Tubingen -	+48 31 10	-0 36 14
Königsberg	+54 42 12	-1 22 0.6	Turin -	+45 4 0	-0 30 42
Lisbon -	+38 42 24	+0 36 34	Uraniburgh	+55 54 38	-0 50 52
Madras -	+13 4 8	-5 21 11	Verona -	+45 26 7	-0 44 1
Manheim -	+49 29 18	-0 33 51	Vienna -	+48 12 36	-1 5 31
Marseilles -	+43 17 49	-0 21 29	Viviers -	+44 29 19	-0 18 54
Marlia -	+43 54 28	-0 42 18	Wilna -	+54 41 2	-1 41 10

North Latitudes and *West* Longitudes are indicated by the sign + :

South Latitudes and *East* Longitudes by the sign —.

EXPLANATION OF THE ARTICLES

CONTAINED IN

THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS,
FOR THE YEAR 1834.

ALL the articles of the Ephemeris have been computed for Greenwich MEAN solar time; and where they are expressed for apparent solar or sidereal time, it has been chiefly for the convenience of astronomers. A *day* is the interval of time between the departure of any meridian from a heavenly body and its succeeding return to it, and derives its name from the body with which the motion of the meridian is compared. The interval between the departure and return of a meridian to the Sun is called a *solar day*; in the case of the Moon, the interval is called a *lunar day*; and in that of a Star, a *sidereal day*. The revolution of the Earth on its axis is always performed in the same time; and if the heavenly bodies preserved the same positions with respect to each other, the intervals between the departure and return of a meridian to each would be the same, and all days, consequently, of equal length. The Sun, (or, more strictly, the Earth in its orbit,) the Moon, and the Planets are, however, in continual motion; and with velocities not only different from each other, but varying in each particular body: the length of a day, as determined by any of these bodies, is therefore a variable quantity.

Astronomers, with the view of obtaining a convenient and uniform measure of time, have recourse to a *mean solar day*, the length of which is equal to the mean or average of all the apparent solar days in a year. An imaginary Sun, called the *mean Sun*, is conceived to move uniformly in the Equator with the real Sun's *mean* motion in Right Ascension, and the interval between the departure of any meridian from the *mean Sun* and its succeeding return to it is the duration of the mean solar day. Clocks and Chronometers are adjusted to mean solar time; so that a complete revolution (through 24 hours) of the hour hand of one of these machines should be performed in exactly the same interval as the revolution of the Earth on its axis with respect to the mean Sun. If the mean Sun could be observed on the meridian at the instant that the clock or chronometer indicated $0^h\ 0^m\ 0^s$, it would again be observed there when the hour hand returned to the same position. As the time deduced from observations of the *true Sun* is called *true* or *apparent* time, so the time deduced from the *mean Sun*, or indicated by the machines which represent it, is denominated *mean* time.

We cannot *immediately* obtain mean time from observation; but, from an observation of the true Sun, with the aid of the equation of time, which is the angular distance in time between the mean and the true Sun, we may readily deduce it. Suppose the true Sun to be observed on the meridian of Greenwich, Jan. 1, 1834; it would then be apparent noon at that place; the equation of time at that instant is $3^m\ 49^s\ 40$, and, by the precept at the head of the column, it is "*to be added to ap-*

parent time," hence it appears that the corresponding mean time is $0^h 3^m 49^s.40$, or that the mean Sun had passed the meridian previously to the true Sun, and that at the instant of observation the mean time clock or chronometer ought to indicate this time.

A mere inspection of the columns of the Ephemeris is, of itself, sufficient to show that the quantities are continually varying, and that some reduction is necessary where data are to be obtained for any time differing from that for which the quantities are registered. Take, for instance, the Sun's Right Ascension on Page II. of the month of January; on January 1, it is $18^h 46^m 26^s.79$; on January 2, it is $18^h 50^m 51^s.60$; in the course of 24 mean hours it has therefore increased by $4^m 24^s.81$. If, then, the Right Ascension were required for any time between the Mean Noons of January 1 and 2, as at 6^h from Mean Noon of January 1, it would be necessary to increase the Right Ascension on January 1, by the proportional part of the daily increase due for the 6^h , viz. by one-fourth part, or $1^m 6^s.20$. This would in all cases be required, even under the meridian of Greenwich, for which the quantities have been specially computed. Let a person be now supposed to be under a meridian 15° West of Greenwich. The positions of the heavenly bodies, as referred to the centre of the Earth, are independent of meridians, and are the same for all places at the same absolute instant; but the relative times at Greenwich and the assumed meridian would be different. If it were 1^h from mean noon at the one place, it could not be 1^h from mean noon at the other; for when we speak of time, we mean, as regards a visible phenomenon, the distance of the Sun *westward* from a given meridian, and at the same absolute moment of time the Sun *cannot* be at the same distance (*reckoning westward*) from two meridians which are 15° distant from each other. Before we can make use of the Ephemeris, it is therefore necessary to ascertain, in every instance, the distance of the Sun (*in time*) from the meridian of Greenwich, or what is commonly called the corresponding Greenwich time; and this is evidently equal to the given time under the assumed meridian, *increased* or *diminished* by the difference (*in time*) of the two meridians, accordingly as the assumed meridian is to the *Westward* or *Eastward* of Greenwich. In a mean Solar day, or 24 mean Solar hours, the Earth, by its rotation from West to East, has caused every meridian in succession from East to West to pass the mean Sun; and since the motion is uniform, all the meridians distant from each other 15° will have passed the mean Sun, at intervals of one mean hour; the meridian to the Eastward passing first, or being, as compared with the Sun, always one mean hour in advance of the Westerly meridian. When it is 6^h from mean noon at a place 15° West of Greenwich, it is therefore 7^h from mean noon at Greenwich; and it is for this Greenwich time that we must deduce the quantities required from the Ephemeris.

If a chronometer adjusted to Greenwich mean time be at hand, the Greenwich time may be immediately obtained by applying a correction, deduced from the rate and interval elapsed, and this will be preferable in all cases for obtaining the requisite data from the Ephemeris.

The day adopted in this Ephemeris is supposed to begin at mean noon, or at the instant when a clock or chronometer shows $0^h 0^m 0^s$, Greenwich mean time, and is continued through the 24 hours, to the following mean noon, when another day begins. It may therefore be called the *Mean Astronomical Day*: although, in practice, astronomers always begin the day at the moment that the Sun's centre is on their meridian.

In the civil, or common, method of reckoning, the day is supposed to commence at the *preceding* midnight, and to be counted only to 12 hours or noon, when the 12 hours are reckoned over again to the next midnight. The civil reckoning is therefore always 12^h in advance of the mean astronomical reckoning: and the civil time corresponding

to any given mean astronomical time is hence readily found by *adding* 12^h to the latter: thus, if to Jan. $1^d 7^h 49^m$, mean astronomical time, be added 12^h , the sum will be Jan. $1^d 19^h 49^m$, or Jan. $1^d 7^h 49^m$ P. M. civil time. Again, to Jan. $1^d 15^h 35^m$, mean astronomical time, add 12^h ; the sum will be Jan. $2^d 3^h 35^m$ A. M. civil time. It thus appears that, from noon to midnight, the day of the month and the hour of the day are the same in both methods; but from midnight to noon they differ; for at midnight, when a new civil day commences, the mean astronomical day wants 12^h of its completion.

The conversion of civil into mean astronomical time is on the contrary performed by *diminishing* the former by 12^h . Thus, January $2^d 3^h 35^m$ A. M. civil time, diminished by 12^h , leaves January $1^d 15^h 35^m$ for the corresponding mean astronomical time.

To each month there are devoted twenty-two pages, distinguished by the Roman numerals from I. to XXII.

For the convenience of taking out differences, the quantities that follow next in order of succession have been inserted at the bottom of each page. Thus the quantities opposite to February 1 will be found inserted also opposite to January 32, the number of the days in each month having been intentionally increased for such purpose.

Page I. of each Month.

The contents of this page are adapted to *Apparent Noon*, or the instant when the Sun's centre is on the meridian of Greenwich. The *Sun's Right Ascension*, here given, is *affected with Aberration*, and reckoned from the true Equinox; it is therefore the Sidereal Time at Apparent Noon, or the time which ought to be shown by a Sidereal Clock, at that instant. The *Sun's Declination*, at Apparent Noon, is the *apparent* angular distance of the Sun from the Equator, measured on the meridian.

The columns entitled "Diff. for 1 hour" are intended to facilitate the reduction of the quantities from the meridian of Greenwich to any other meridian. The values of these quantities for any proposed *mean* time will, however, be more accurately ascertained by means of the numbers on page II., from which, indeed, they have been derived.

The *Sidereal Time of the Sun's Semidiameter passing the Meridian* is useful for reducing a transit observation of either limb of the Sun, when one only has been observed, to the transit of the centre.

The *Equation of Time* is the difference between Apparent and Mean Time, and therefore serves for the conversion of either time into the other. The numbers here given, show, for Greenwich Apparent Noon, the distance of the mean Sun from the meridian, or the portion of time to be *added to*, or *subtracted from*, (according to the precept at the head of the column) Greenwich Apparent Noon to obtain the corresponding Mean Time at the same meridian, or the time which ought to be shown by the Mean Time Clock. It differs from the Equation of Time in page II., because the equation itself varies in the interval between Apparent and Mean Noon. If we turn to page I. of the month of April, we observe, at the head of the column, "*added to* *subt. from*" which signifies that a change of precept occurs in the course of the month:

and between the equations opposite to the 15th and 16th days of the month, a black line, indicating that the change occurs between the Mean Noons of those days. The upper precept is to be applied to all the quantities above the black line; and the lower precept to all the quantities below it: that is, in the instance referred to, the Equation of Time is to be *added to* Apparent Time from the 1st of April to the instant at which the equation becomes $0^m 0^s$, which happens between the noons of the

15th and 16th days of the month; but after that instant the equation is to be *subtracted* from Apparent to obtain Mean Time.

Where time is deduced from observations of the Sun, the *immediate* result is *apparent* time; to convert it into mean time, the equation of time is necessary, and it is to be applied to apparent time, according to the precept at the head of the column.

Thus, suppose the apparent time deduced from an observation of the Sun on January 16, 1834, in longitude 45° or 3^h east of Greenwich, to be 6^h , and it were required to convert it into mean time: Subtracting the difference of longitude 3^h from the apparent time at the place, we have 3^h for the corresponding apparent time at Greenwich. The difference of the equation for 1 hour is $0^m 84.1$, which, multiplied by 3, gives $2^m 52.3$ for the variation in 3 hours, and this being added (because the equation is increasing) to $10^m 4^m 41$, the equation of time at apparent noon, the result is $10^m 6^m 93$, to be added (according to the precept at the head of the column) to the given apparent time 6^h , whence we obtain $6^h 10^m 6^m 93$ for the mean time required.

Page II, of each Month.

The Sun's *Right Ascension* and *Declination* at mean noon have been deduced from its longitude and latitude given at page III., and the *apparent* obliquity of the ecliptic at p. 266. They denote the *apparent* position of the true Sun with reference to the equator, and the true equinox, at the instant the Greenwich mean time clock, or chronometer, indicates $0^h 0^m 0^s$, or when the horary angle of the true Sun is equal to the equation of time.

To find the Right Ascension and Declination for any other mean time and place, as at $9^h 20^m$ A.M. March 2, 1834, in longitude 98° , or $6^h 32^m$ west of Greenwich. The astronomical time, corresponding to $9^h 20^m$ A.M. March 2, is $21^h 20^m$ from the noon of March 1, or March $1^d 21^h 20^m$, agreeably to what has been said before. The longitude, being West of Greenwich, must be added to March $1^d 21^h 20^m$, and the result, March $2^d 3^h 52^m$, is the corresponding Greenwich mean time, for which the Right Ascension and Declination are to be found. The difference between the Right Ascensions on March 2 and March 3 is $3^m 43^s 94$, that is in the 24 mean hours succeeding the Mean Noon of March 2, the Right Ascension has increased by that quantity; it will, therefore, have received a proportional part of that increase in $3^h 52^m$, and the amount is readily obtained by this proportion; $24^h : 3^m 43^s 94 :: 3^h 52^m : 36^s 08$; which, being added to $22^h 51^m 37^s 49$, the Right Ascension at Mean Noon of March 2, gives $22^h 52^m 13^s 57$ for the Right Ascension at the time proposed.

In a similar manner the Declinations indicate a decrease of $22' 55'' 5$, in the 24 hours; therefore $24^h : 22' 55'' 5 :: 3^h 52^m : 3' 41'' 6$, the proportional part of the decrease for $3^h 52^m$, which, subtracted from S. $7^{\circ} 16' 11'' 0$, leaves S. $7^{\circ} 12' 29'' 4$ for the Declination required.

The Semidiameter of the Sun. The numbers in this column express the angle at the centre of the earth subtended by the Sun's Semidiameter, and they are required for reducing observations of the limb to the centre, as in the instance of measuring the altitude of the Sun's upper or lower limb, or the distance of the Moon from the Sun.

Equation of Time. The numbers in this column are the values of the equation at the instant of Mean Noon, and therefore serve more particularly to convert *Mean* into *Apparent* Time: for this purpose we have only to *add* the equation where the precept directs it to be *subtracted*, and *subtract* where it is directed to be *added*. Thus, if

from $0^h 4^m 1^s.06$ mean time of April 1, be subtracted the equation $4^m 1^s.06$, the difference 0^h or noon is the corresponding apparent time. To find the equation of time at 3^h mean time P.M. on April 15, 1834, in longitude 62° , or $4^h 8^m$ West of Greenwich. Add the difference of longitude to the given time, because it is west, and the corresponding astronomical mean time at Greenwich is April $15^d 7^h 8^m$. The variation in 24 hours is $14^s.87$, that is the *sum* of the equations belonging to the noons of the 15th and 16th, because the equation has decreased to 0, and then increased in the interval, therefore

$$24^h : 14^s.87 :: 7^h 8^m : 4^s.42,$$

which, being greater than $0^m 4^s.31$, the equation on the 15th, which was decreasing, shows that in the $7^h 8^m$ the equation has passed through its state of decrease to zero, or 0, and is now increasing. The difference $0^s.11$ is the equation of time at the time required, and is to be added to mean time, because it has passed the zero.

Sidereal Time at Mean Noon is the angular distance of the First point of Aries, or the true Vernal Equinox from the meridian, at the instant of Mean Noon: it is therefore the Right Ascension of the Mean Sun; or the time which ought to be shown by a Sidereal Clock at Greenwich, when the Mean Time Clock indicates $0^h 0^m 0^s$.

A Sidereal Clock REPRESENTS the rotation of the Earth on its axis, as referred to the Stars, its hour-hand performing a complete revolution through the 24 hours in the interval between the departure of any meridian from a Star and its next return to it. At the moment that the Equinox, or a Star whose Right Ascension is $0^h 0^m 0^s$, is on the meridian of Greenwich, the Sidereal Clock ought to show $0^h 0^m 0^s$, and at the succeeding return of the Star, or the Equinox, to the same meridian, the Clock ought to indicate the same time.

The sidereal time here intended is that in common use among astronomers, and expresses the actual hour-angle from the meridian, westward, of the true equinoctial point at the moment of observation. It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal time* (whose expression would be simply $\frac{\odot\text{'s mean longitude}}{15}$) would be reckoned from the transit of (not the

true, but) the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to *mean* sidereal time, is subject, being at the utmost only $2^s.3$ in a period of nineteen years, has prevented the practical inconvenience of this from being felt: no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary, in this instance, to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation.

The Sidereal time at Mean Noon is useful in all cases where mean solar time is to be deduced from observations of the heavenly bodies.

It also serves to facilitate the reduction of sidereal to mean solar time, and *vice versa*, by the help of the tables commonly used for that purpose, called a Table of *Ac-*

celeration of Sidereal on Mean Solar Time, and the corresponding Table of Retardation of Mean on Sidereal Time, according to the following rule:—Convert the interval from the mean noon immediately preceding, from the denomination given, to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time at the preceding mean noon.

Example:—To convert $21^{\text{h}} 9^{\text{m}} 23^{\text{s}} \cdot 04$ sidereal time, Jan. 2, 1834, into mean solar time, for the meridian at Greenwich.

Sidereal time given	- - - - -	$21^{\text{h}} 9^{\text{m}} 23^{\text{s}} \cdot 04$
Sidereal time at mean noon, January 2	- - - - -	$18^{\text{h}} 46^{\text{m}} 34^{\text{s}} \cdot 02$
Interval in sidereal time from mean noon	- - - - -	$2^{\text{h}} 22^{\text{m}} 49^{\text{s}} \cdot 02$
Retardation of mean on sidereal time for the interval	- - - - -	$- 23^{\text{s}} \cdot 40$
Mean solar time required	- - - - -	$2^{\text{h}} 22^{\text{m}} 25^{\text{s}} \cdot 62$

which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

Vice versa, to convert $2^{\text{h}} 22^{\text{m}} 25^{\text{s}} \cdot 62$ mean solar time, January 2, 1834, into sidereal time for the same meridian.

Mean interval from mean noon, January 2	- - - - -	$2^{\text{h}} 22^{\text{m}} 25^{\text{s}} \cdot 62$
Acceleration of sidereal on mean time for the interval	- - - - -	$+ 23^{\text{s}} \cdot 40$
Sidereal interval from mean noon	- - - - -	$2^{\text{h}} 22^{\text{m}} 49^{\text{s}} \cdot 02$
Sidereal time at mean noon, January 2	- - - - -	$18^{\text{h}} 46^{\text{m}} 34^{\text{s}} \cdot 02$
Sidereal time required	- - - - -	$21^{\text{h}} 9^{\text{m}} 23^{\text{s}} \cdot 04$

which ought to be the time shown by the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time must be corrected by the *addition* of $9^{\text{s}} \cdot 8565$ for each hour (and proportional parts for the minutes and seconds) of longitude if the place be to the west of Greenwich; but by its *subtraction*, if to the east. Thus, in $9^{\text{h}} 10^{\text{m}} 6^{\text{s}}$ west longitude, the sidereal time at mean noon, January 2, instead of being, as in the foregoing Example, $18^{\text{h}} 46^{\text{m}} 34^{\text{s}} \cdot 02$, must be corrected by adding $1^{\text{m}} 30^{\text{s}} \cdot 37$, thus giving $18^{\text{h}} 48^{\text{m}} 4^{\text{s}} \cdot 39$ for the time to be used, instead of that set down in the column.

The conversion of mean solar to sidereal time, and *vice versa*, may, however, be performed, and with perhaps less liability to error, by means of this and of the column entitled "*Mean Time of Transit of the First point of Aries*," at page XXII. of each month, using the Tables of Time Equivalents, inserted at pages 486 to 489.

To convert mean solar to sidereal time: To the sidereal time at the *preceding* mean noon add the equivalent sidereal interval corresponding to the given mean time; the sum will be the sidereal time required. (See Example at page 487.)

To convert sidereal to mean solar time: To the mean time at the *preceding* sidereal noon, add the equivalent mean interval corresponding to the given sidereal time, the sum will be the mean solar time required.—(See Example at page 489.)

This mode of reduction is adopted by Professor ARRY, in preference to the former method by means of Tables of Acceleration and Retardation, and it possesses the advantage, that there is no distinction of cases, and all the quantities are additive. The Tables of Time Equivalents differ from the Tables of Acceleration and Retardation, in

containing the *values* of intervals of each species of time, expressed in terms of the other, instead of the *corrections*, respecting the proper application of which, a difficulty is sometimes felt by unpractised computers.

Sidereal time at mean noon is also used in finding the mean time of transit of a heavenly body.

Page III of each month.

The *Sun's Longitude*, here given, is affected with *aberration*, and reckoned from the *true* equinox: it is therefore the *apparent* longitude of the Sun at the instant of mean noon; or it is (if ρ denote the Radius Vector) the *true* longitude of the Sun at the time $0^h - 495^s.775$, because aberration causes the Sun to appear behind its true place in the Ecliptic.

The *Sun's Latitude* is the angular distance of the Sun's centre from the plane of the Ecliptic, measured on a circle perpendicular to that plane.

The *Logarithm of the Radius Vector of the Earth* is the logarithm of the distance between the centre of the Earth and the *apparent* place of the centre of the Sun at mean noon, the mean distance, or the semi-axis major of the orbit being considered unity.

These quantities are derived *immediately* from the Solar tables, and enter into, indeed are the foundation of, nearly all the subsequent operations in the Ephemeris. Whenever the *true* longitude of the Earth is required, as in calculating the Geocentric position of a Planet or Comet from its Heliocentric position, it is necessary to reduce the *apparent* longitude of the Sun to the *true*, by correcting it for aberration. The Sun's aberration for every tenth day is given at page 266, and may thence be readily obtained for any other day of the year. (See *Aberration*, page 508.) In strictness, the *Logarithm of the Radius Vector* should also be corrected for aberration, but this is generally neglected, the correction being too small to affect the accuracy of the results in practice.

The Sun's longitude, entering into the expressions for aberration and Solar nutation, is required for the reduction of the Stars' places.

The *Moon's Semidiameter* is the angle under which her Semidiameter would appear if viewed from the centre of the Earth; and her *Horizontal Parallax* is the *greatest* angle under which the Earth's Equatorial Semidiameter would appear if seen from the centre of the Moon. The former is requisite to obtain the position of the centre from an observation of the Moon's *limb*, as in all cases of altitudes or lunar distances. The latter, for computing the horizontal parallax of the Moon at any given latitude on the Earth, *considered as a Spheroid*; also for finding the parallax in altitude, Right Ascension, &c., for the purpose of reducing an observation of the Moon made on the surface of the Earth, to what it would have been if made at the centre.

In reducing observations of the Moon made at sea, the horizontal *equatorial* parallax is generally used for finding the parallax in altitude, without regarding the previous reduction to the Spheroid; but in calculations requiring considerable precision, as in lunar occultations and solar eclipses, this reduction cannot be dispensed with.

Example. To find the Moon's Semidiameter and Horizontal Parallax at 6^h A.M. January 17, 1834, at a place 15° , or 1^h to the eastward of Greenwich. The civil time at the place, expressed in mean astronomical time, is January $16^d 18^h$, from which subtracting 1^h , because the place is to the eastward of Greenwich, we have January $16^d 17^h$ for the corresponding time at Greenwich, or 5^h after midnight. Proceeding from the semidiameter given for midnight, we must compute the proportional part of the variation in 12 hours due to the time elapsed since midnight, viz. 5^h ; and for ordinary

purposes at sea, it will suffice simply to take this proportional part for the correction of the registered value preceding the given time: thus the semidiameter, for midnight, or 12^h of the 16th, is 14' 48''·4, and for the 17th at noon, or 24^h, it is 14' 51''·1; the difference 2''·7 is the variation in 12 hours. Therefore,

$$12^h : 2''\cdot7 :: 5^h : 1''\cdot125,$$

which, *added* (because the quantities are increasing) to 14' 48''·4, gives 14' 49''·5 for the Moon's Semidiameter at the time proposed. Similarly, the Horizontal Parallax at midnight of the 16th is 54' 20''·3; and at the noon of the 17th it is 54' 30''·1; the difference 9''·8 is the variation in the 12 hours, which include the given time; therefore, 12^h : 9''·8 :: 5^h : 4''·08, or 4''·1, which *added* (because the quantities are increasing) to 54' 20''·3, gives 54' 24''·4 for the Horizontal Parallax required. If greater accuracy be desired, a further correction must be applied to the values just obtained, on account of second differences, to compensate the error produced by supposing the first differences uniform. But the *greatest* error in the semidiameter occasioned by this supposition would, in the present instance, barely amount to one-tenth of a second; for, select four semidiameters from the Ephemeris, two preceding, and two following the given time, and take the first and second differences, thus:—

January 16,	0	14	46	·5				
	12	14	48	·4	+	1	·9	
					+	2	·7	+
17,	0	14	51	·1				0
	12	14	54	·5	+	3	·4	·8
					+			·7

The mean of the second differences is 0''·75, and $\frac{1}{2}$ of this, which is the *greatest* effect, is very nearly equal to 0''·1.

If the same operation were performed on the Parallaxes, the greatest error that would arise on the supposition of uniform or equal first differences, would scarcely exceed three-tenths of a second.

Page IV of each Month.

The *Moon's Longitude and Latitude* at Mean Noon and Midnight indicate the position of the Moon at these respective times, referred to the true Ecliptic and the true Equinox, as it would be seen from the centre of the earth. They are the results deduced immediately from the Lunar Tables, and are the foundation of all subsequent calculations in which the Moon is concerned. These quantities are now of little use to the seaman, as the position of the Moon, with respect to the Equator, is given for every hour in the succeeding pages; but the Moon's Longitude is involved in the formula for nutation, and is therefore necessary for its determination. In finding the Moon's Longitude and Latitude for any other times than those of Mean Noon and Midnight, it is necessary to apply the equation of second, and sometimes even of third differences, on account of the irregular variation of her motion.

The *Moon's Age* at Mean Noon is the Mean Time elapsed since the Moon's ecliptic conjunction with the Sun, or since the Sun and Moon had the same Longitude. The numbers in this column represent her age at Greenwich, and are expressed in days, and decimal parts of a day.

The *Moon's Meridian Passage*.—This column contains the Greenwich Mean Time, to the nearest tenth of a minute, at which the Moon's centre is on the *upper* Meridian of Greenwich, and is useful to indicate when the Latitude may be obtained from an observed meridian altitude of the Moon; also, in conjunction with the Semi-diurnal

Ares, to determine the times of the rising and setting of the Moon: it is likewise useful in finding the time of High Water.

When the symbol (\odot) denoting conjunction occurs, as on January 9, we are to understand that the Moon does *not* pass the *upper* meridian on that day at Greenwich. This is the case once in every lunation, and arises from the circumstance of the Lunar day being greater than the Mean Solar day, and including it within its limits. In the present instance, the excess is $52^m.8$, or the lunar day is equal to $24^h 52^m.8$ Mean Solar time; the Moon passes the meridian on the 8th at $23^h 43^m.9$, or $16^m.1$ *previously* to the noon of the 9th, and does not return to the same meridian until $0^h 36^m.7$ *after* the noon of the 10th. For the same reason there is also one day in every lunation on which the Moon does not transit the *lower* meridian, and this happens about the time of opposition, or when the difference of longitude of the Sun and Moon is 180° . In the list of Moon-culminating Stars, at pages 416 to 453, the days on which only one transit occurs are readily seen. On January 9th (page 416), for instance, it appears that the Moon transits only the lower meridian, while on the 24th (page 418), the only transit is that at the upper meridian.

To find the Mean Time of Transit under any other Meridian, suppose 45° or 3^h west of Greenwich, on January 15, 1834. The Meridian being to the west of Greenwich, the Transit will take place after the Greenwich time of Transit on the 15th; therefore take the difference between the Meridian Passages on the 15th and 16th, which is $40^m.7$. Then, $24^h : 40^m.7 :: 3^h : 5^m.1$, which *added* to the Greenwich Mean Time of Transit at Greenwich, gives $4^h 29^m.8$ for the Mean Time of Transit at the given Meridian. Had the assumed Meridian been 3^h to the east of Greenwich, the Transit would have taken place before the Transit at Greenwich, and the proportional part of the difference, viz., $5^m.1$, must in this case have been *subtracted*. The times thus deduced are only approximate; but they are sufficiently accurate for the purposes usually required.

Pages V to XII of each Month.

The *Moon's Right Ascension and Declination* for every hour of the day, with the *difference of Declination for 10 minutes*. By means of the quantities here given, the Latitude, Time, Azimuth, Moon's rising and setting, &c., may be deduced, with nearly as little labour as is required in the case of the Sun. The numbers represent the position of the Moon, as it would appear from the centre of the Earth, with respect to the Equator and the true Equinox: and they are given for every hour, with the view of rendering any correction for second differences unnecessary, except where extreme precision is required. The Right Ascension for any time is readily obtained by simply adding the proportional part of the hourly variation due to the interval elapsed since the preceding hour. Thus, suppose the Right Ascension of the Moon were required at $8^h 45^m$ mean time of January 8, in longitude 60° , or 4^h east of Greenwich. The given time, $8^h 45^m$, diminished by 4^h , gives the corresponding Greenwich time $4^h 45^m$. The Right Ascension at 4^h is $18^h 12^m 2^s.75$, and at 5^h it is $18^h 14^m 22^s.92$; the difference, $2^m 20^s.17$, is the increase in the interval, or 60^m . Hence, $60^m : 2^m 20^s.17 :: 45^m : 1^m 45^s.13$, which being added to the Right Ascension at 4^h , gives $18^h 13^m 47^s.88$ for the Right Ascension at $4^h 45^m$ at Greenwich, or at $8^h 45^m$ under the assumed meridian. To find the Declination, we make use of the numbers in the column headed "*Diff. Dec. for 10^m*." The number in this column standing opposite to any hour is $\frac{1}{2}$ of the difference of the Declinations at that and the following hour. We therefore say, $10^m : 22''.27 :: 45^m : 100''.2$, which being

added (because the Declinations are increasing) to S. $23^{\circ} 8' 1''\cdot6$, the Declination at 4^h , gives S. $23^{\circ} 9' 41''\cdot8$ for the Declination at the time proposed.

The Phases of the Moon. These are given at page XII, to the nearest tenth of a minute. The numbers denote the Greenwich Mean Time, at which the differences of Longitude between the Sun and the Moon are 0° , 90° , 180° , or 270° , being

0° at the New Moon,
 90° at the First Quarter,
 180° at the Full Moon,
 270° at the Last Quarter.

The Moon's Apogee and Perigee. The numbers here given indicate, to the nearest hour, the Greenwich Mean Time at which the Moon is respectively at her greatest and least distance from the Earth.

Pages XIII to XVIII of each Month.

Lunar Distances.—These pages contain, for every third hour of Greenwich Mean Time, the angular distances between the *centres* of the Moon and certain heavenly bodies, such as they would appear to an observer at the centre of the Earth. When a Lunar Distance has been observed on the surface of the Earth, and reduced to the centre, by clearing it of the effects of parallax and refraction, the numbers in these pages enable us to ascertain the exact Greenwich mean time at which the objects would have the same distance. They are arranged, from *west* to *east*, commencing each day with the object which is at the greatest distance *westward* of the Moon, in the precise order in which they appear in the heavens; W. indicating that the object is west, and E. east, of the Moon. Thus we have at one view, by a simple reference to the date, all the lunar distances which are available for the determination of the Longitude.

The columns headed “P. L. of diff.” contain the Proportional Logarithms of the Differences of the distances at intervals of three hours, which are used in finding the Greenwich time corresponding to a given distance, according to the following rule, viz.: Seek in the Ephemeris for the *nearest* distance *preceding* the given distance, and take the difference between it and the given distance; from the proportional logarithm of this difference subtract the proportional logarithm standing opposite to the *nearest* distance in the Ephemeris; the remainder will be the proportional logarithm of a portion of time to be added to the hour answering to the *nearest* distance, to obtain the approximate Greenwich mean time corresponding to the given distance.

If the distances between the Moon and a Star increased or decreased uniformly, the Greenwich time, corresponding to a given distance as found by the above rule, would be strictly correct; but an inspection of the columns of the Proportional Logarithms in the Ephemeris will show that this is not the case; and as the knowledge of the exact Greenwich time is indispensable, a correction must be applied to the time so found for the variation of the differences of the distances. This correction may be obtained by means of the Table at page 482 of the present volume, in the following manner:—

1. Find the Approximate interval, by the preceding rule.
2. Take the difference between the proportional logarithms standing opposite to the distances in the Ephemeris which include the given distance.
3. With the approximate interval and this difference as arguments, take out the correction from the table.

4. If the Prop. Logs. are *decreasing*, add the correction to the approximate time; but if they are *increasing*, subtract it: the result will be the accurate Greenwich time.

Example.—Suppose it were required to find the Greenwich Mean Time, at which the *true* distance between the Moon and α Aquilæ would be $54^{\circ} 54' 16''$ on March 29, 1834. We see, by inspecting the distances, that the time must be between III^h and VI^h, therefore take the

Distance at III ^h	-	55	29	57	and P. L.	-	-	3549
True Distance	-	54	54	16				
<hr/>								
Difference	-	0	35	41	- - - P. L.	-	-	7028
<hr/>								
Approximate Interval	1 ^h 20 ^m 48 ^s	- - -	P. L.	-	-	-	-	3479

The difference between the Proportional Logarithms in the Ephemeris, at III^h and VI^h is 72. Opposite to 1^h 20^m, and under 72, in the Table, we have for the correction 22^s, which, *subtracted* from the Approximate Interval, 1^h 20^m 48^s, because the Proportional Logarithms are *increasing*, gives 1^h 20^m 26^s for the true interval from III^h: hence the Greenwich Mean Time is 4^h 20^m 26^s.

In the present instance, we see that the omission of this correction would produce an error of 5' 30" in the Longitude. It is, however, an extreme case; for α Aquilæ is not only more distant from the Moon's path than the other objects used for Lunar Distances; but the distance has here been taken near the limits, or when the Moon's velocity in her approach towards the object is such as to render the observation liable to error.

The proportional logarithms also serve to point out the object which is most favourably circumstanced for accurate observation; that object being to be preferred which has the least Proportional Logarithm opposite to it: for, the greater the velocity of the Moon from or towards a Star, the greater is the reliance to be placed on an observation of the distance; and it is a property of Proportional Logarithms to decrease as their natural numbers increase: a smaller Proportional Logarithm, therefore, indicates a greater velocity of the Moon, or a greater variation of distance in the interval, upon which the value of the observation depends. Thus, on January 1, 1834, between Noon and III^h, Pollux is the most eligible star, because the Proportional Logarithm, 2294, is less than those of any which follow it; and, by inspecting the columns of Proportional Logarithms, it will appear to deserve the preference throughout the 24 hours of the 1st day; though at XXI^h, from the Moon's motion during the day, it is evident that Regulus is gradually getting into a better position; and if we look to VI^h on January 2, we shall see that it has really the advantage over Pollux at this time.

On the 1st day of January, between Noon and III^h, the following is the order of preference as indicated by the Proportional Logarithms, viz. Pollux, Antares, Regulus, Mars, Sun, Venus; between III^h and VI^h Regulus would have the preference of Antares, because the proportional logarithm of the difference is less, and the order of the others would remain the same.

It is by no means to be inferred from these remarks that observations of any of the distances are to be neglected; on the contrary, every registered object should invariably be observed when an opportunity offers. If, however, on a comparison of results a considerable difference should be discovered, the Proportional Logarithms will indicate the objects less liable than others to be affected by errors of observation,

and therefore deserving of a greater degree of confidence as to the accuracy of the results obtained from them.

Page XIX of each Month,

Configurations of the Satellites of Jupiter.

In addition to the explanation given at the foot of the page, it may be remarked, that when two Satellites are in or near conjunction, instead of the usual symbol (\odot), it has been thought better to place one above the other, without regard to their actual latitudes, but merely to distinguish them in their relation of *upper* and *lower*.

The Satellites are in the superior parts of their orbits, or have Jupiter between them and the Earth, when they are moving towards the right hand of the page; but they are in the inferior parts of their orbits, or between the Earth and Jupiter, when they are moving towards the left hand.

If a telescope that inverts be directed towards Jupiter on March 15, 1834, at 8^h Mean Time, the Satellites will appear to an observer at Greenwich in the positions as laid down in the Ephemeris. The 4th and 2nd Satellite, which are *really* to the right of the Planet, will appear to the left of it; and the 1st and 3rd, which are *really* to the left, will appear to be to the right.

"*Apparent West*" and "*Apparent East*," at the head of the page, are inserted to show the positions of the Satellites with respect to Jupiter, as they would appear in a telescope that does *not* invert. Jupiter being always to the South of the zenith of Greenwich, the Satellites which are here laid down on the left of Jupiter would appear to the *West*, and those on the right-hand to the *East* of the planet.

As regards their positions to the east or west merely, the page viewed directly, exhibits the Satellites in an inverted order; but if the leaf be turned over, and the page viewed from the other side, they will appear in their real positions. The simplest mode of changing the position of a Satellite from apparent to real, or *vice versa*, is to draw a line from the Satellite through Jupiter's centre, and to place the Satellite upon this line at the same distance from the centre as before, only on the opposite side. If this operation be performed upon the Configurations as laid down in this volume, the Satellites will be exhibited in their real positions.

As the Configurations are here given for *Mean Astronomical time*, which agrees with *Civil time* only from 0^h to 12^h, or from noon to midnight, when the time exceeds 12^h, the excess will indicate the Civil time of the succeeding day of the month.

Thus in August, 1834, the Configurations are given for 14^h mean time, but the 14th hour from noon is the same as the 2nd hour from the following midnight, when a new Civil day has commenced. The appearances, therefore, relate to 2^h A.M. of the day following, according to the common mode of reckoning time; that is, the Configurations at 14^h on August the 1st relate to 2^h A.M. on August the 2nd.

The Configurations enable an observer to distinguish the Satellites from each other, and from Stars in the vicinity of Jupiter.

Page XX of each Month.

Eclipses of the Satellites of Jupiter.

On this page are given the Mean and Sidereal Times of the Eclipses of the Satellites, together with diagrams exhibiting the position of each Satellite with respect to the disc of the Planet at the moment of Immersion or Emersion, as it will appear in an

inverting telescope. These diagrams have been laid down from calculations made for the eclipses nearest to the middle of each month; but they will serve very well for the whole of the month, *except near opposition*, the change in the position of Jupiter and his Shadow in the interval being too small to be appreciable by the eye; as is evident by comparing the Phases for any two successive months. All the Eclipses which happen when Jupiter is 8° above, and the Sun 8° below the horizon of Greenwich, are marked with an asterisk, to indicate that they are visible at that place; and some which are even within these limits have been also marked, as, under favourable circumstances, such eclipses have been sometimes observed.

The Immersions (Im.) denote the instant of the disappearance of the Satellite, by entering into the shadow of Jupiter; and the Emersions (Em.), the instant of its re-appearance at coming out of the shadow. They generally happen when the Satellite is apparently at some distance from the body of Jupiter, except near the opposition of Jupiter to the Sun, when the eclipse takes place near the body of the planet. Before the opposition, the Immersions and Emersions happen on the West side, but after opposition on the East side of the planet: With an inverting telescope the appearances will be directly the contrary. Before the opposition, the Immersions only of the first Satellite are visible; and after the opposition, the Emersions only. It is seldom, also, that the Immersion and Emersion of the second Satellite can be observed at the same eclipse; but both the phenomena are generally visible with the third and fourth Satellites.

To find the time at which the Immersion or Emersion of any of the Satellites will take place under any other meridian than that of Greenwich, it is merely necessary to add the difference of longitude (*in time*) to the time of the phenomenon at Greenwich, if the meridian be *east* of Greenwich, or to subtract it if it be *west*, and the sum or difference will be the time required. But this determines only the instant of the occurrence of the phenomenon. Jupiter may be below the horizon at this time; or he may be above it, and the intensity of sun-light, or even the brightness of the twilight, such as to render the Satellites invisible. To have the Eclipses visible, it has generally been considered that the Sun should be at least 8° below the horizon, and Jupiter not less than 8° above it at the same time. Adopting these limits, it is then necessary to ascertain the position of the Sun and Jupiter, with respect to the horizon, at the time of the phenomenon. This may be readily accomplished by means of a celestial globe, or near enough for the purpose, by finding the times of rising and setting of the objects, with the assistance of a table of semidiurnal arcs.

The Eclipses of Jupiter's Satellites, especially of the first, afford us, perhaps, the readiest means of determining the longitude; all that is necessary to be known being the exact time of observation: the difference between this time and the time at Greenwich, shows the difference of longitude at once, and it is *east* or *west* of Greenwich, according as the time of observation is *greater* or *less* than the Greenwich time.

Suppose the Emersion of Jupiter's first Satellite to be observed, on January 2, 1834, at Paris at $19^{\text{h}} 53^{\text{m}} 55^{\text{s}}.7$ Mean Time at that place; by reference to page XX, it appears that the Emersion will take place at the Greenwich meridian at $19^{\text{h}} 44^{\text{m}} 34^{\text{s}}.1$ Mean Time; the difference, $9^{\text{m}} 21^{\text{s}}.6$, is the difference of longitude between Greenwich and Paris; and, because the Paris time is greater than that at Greenwich, we infer that Paris is to the eastward of Greenwich.

Independent of defects in the tables, there are difficulties in the observation of these phenomena which unfit them for *accurate* determinations of longitude, except on large numbers, and with proper precautions. Different telescopes give different results; and care should be taken to have recourse to those corresponding observations which

have been made under circumstances the most similar, and particularly with telescopes of the same quality and power. When extreme accuracy is not required, the Eclipses of the Satellites will always afford a good approximation towards the difference of meridians, and observations of them should on no account be neglected, especially when the Immersion and Emersion of the same Satellite are both visible.

Page XXI of each Month.

Approximate Sidereal Time of the Occultations of Jupiter's Satellites by Jupiter, and of the Transits of the Satellites and their Shadows over the Disc of the Planet.

These phenomena are inserted in order to apprise Astronomers when they are about to happen, as observations of them may tend to improve the Tables of the Satellites. The instruments required to observe them with any thing like precision, will preclude the probability of their ever becoming available at sea. The times are given in days, hours, and minutes; the day being supposed to commence at mean noon, and the hours and minutes representing sidereal time, such as will be shown by a sidereal clock.

The Phenomena for each Satellite are arranged under three distinct heads, and each in the order of the days of the month, so that an inspection of the columns opposite to each Satellite is necessary to determine what phenomena happen on a given day.

Where an asterisk is annexed to the day of the month, it signifies that the phenomenon is visible at Greenwich, the limits of visibility being the same as those adopted for the eclipses.

In the month of January, 1834, under the general heading "Occultations," opposite to Satellite I, and under Immersion, the first quantity recorded is $2^{\text{d}} 11^{\text{h}} 3^{\text{m}}$, which signifies that at $11^{\text{h}} 3^{\text{m}}$ sidereal time on January the 2nd an Immersion of the 1st Satellite takes place, but that it is not visible at Greenwich. Under Emersion we find, for the whole of the month, "In the shadow," which signifies that the Emersion of the Satellite cannot be seen, because, although it ceases to be occulted by the body of the Planet, it is still involved in its shadow, from which it does not indeed escape until $14^{\text{h}} 34^{\text{m}} 22^{\text{s}}.8$ sidereal time. (See Eclipses of the Satellites of Jupiter on the preceding page.) Again, in the column of Occultations opposite to Satellite II, it appears that the 2nd Satellite is occulted on the 3rd day of the month; that it disappears behind the disc of the Planet at $4^{\text{h}} 19^{\text{m}}$, reappears at $6^{\text{h}} 57^{\text{m}}$ sidereal time, and that both the Immersion and Emersion are visible at Greenwich.

In the column headed "Transits of Satellites," the first visible transit at Greenwich appears to be on the 5th day, when the ingress of the 1st Satellite takes place at $2^{\text{h}} 56^{\text{m}}$, and the egress at $5^{\text{h}} 13^{\text{m}}$ sidereal time; that is, it comes into contact with Jupiter's disc at $2^{\text{h}} 56^{\text{m}}$, remains on the disc $2^{\text{h}} 17^{\text{m}}$, and quits it again at $5^{\text{h}} 13^{\text{m}}$ sidereal time.

The "Transits of Shadows" are to be interpreted in a similar manner.

Page XXII of each Month.

1. *Logarithms of A, B, C, D, for correcting the Places of the Fixed Stars.*

In the formulæ which express the reduction of the apparent place of a Star to its mean place, and reciprocally, there are certain factors which are independent altogether of the Star's place, and belong equally and are common to all Stars. These factors depend upon the longitude of the Sun, Moon, and Moon's Node.

The Logarithms here given are the logarithms of these independent factors, conveniently arranged for incorporation with other terms depending upon each particular Star, according to the method recommended by Professor Bessel. They have been computed for Mean Midnight at Greenwich, according to the formulæ exhibited at page 371, omitting in C and D the term depending on 2ϵ .

In the form under which they now appear, they are chiefly used in conjunction with the Astronomical Society's Tables,* which contain the Logarithms of the remaining terms depending on the Star's place; and for the reduction of any Star in that Catalogue, they appear to afford every facility that can be desired.

Where, however, the apparent place of any Star, *not in the Astronomical Society's Catalogue*, is required, similar quantities to those must either be computed with reference to each particular Star, before we can use the A, B, C, D, or recourse must be had to other and independent means; such, for instance, as are afforded by the Table at pages 372 and 373, which serves equally for all Stars. The construction of this latter Table is explained at page 371.

The following Examples will sufficiently illustrate the mode of using both the Tables.

Required the Correction ($\Delta\alpha$) of the Right Ascension and ($\Delta\delta$) of the Declination of γ Orionis (No. 648, *Ast. Soc. Cat.*), for Precession, Aberration, and Nutation, at Greenwich Mean Midnight, on February 5, 1834.

1.—By the Astronomical Society's Constants and the Logarithms of A, B, C, D.

Mean α , Jan. 1, 1830	h m s 5 16 1.00	Mean δ	+ 6 11 17.10
Four Years Precession	+ 12.84	Four Years Precession	+ 15.29
Mean α , Jan. 1, 1834	5 16 13.84	Mean δ	+ 6 11 32.39
<hr/>		<hr/>	
	Logarithms.	Nat. Nos.	Logarithms.
a	+ 8.1069		a'
A	- 1.1339		A
aA	- 9.2408	- 0.174	$a'A$
b	+ 8.8184		b'
B	+ 1.1444		B
bB	+ 9.9628	+ 0.918	$b'B$
c	+ 0.5065		c'
C	- 9.3470		C
cC	- 9.8535	- 0.714	$c'C$
d	+ 7.1395		d'
D	+ 9.6830		D
dD	+ 6.8225	+ 0.001	$d'D$
	$\Delta \alpha =$	+ 0.031	$\Delta \delta =$

* "New Tables for facilitating the Computation of Precession, Aberration, and Nutation of 2881 Principal Fixed Stars, together with a Catalogue of the same, reduced to January 1, 1830. Computed at the Expense and under the Direction of the Astronomical Society of London. To which is prefixed an Introduction explanatory of their Construction and Application. By Francis Baily, Esq. London, 1827. 4to."

EXPLANATION.

2.—By the independent Constants,

For February 5, 1834, the Table at pages 372, 373 furnishes

$$f = -10^{\circ} 23; g = +4^{\circ} 48; G = 173^{\circ} 50; A = +19^{\circ} 49; H = 315^{\circ} 42; i = -5^{\circ} 91$$

$$a \text{ (in time) converted} = \begin{array}{r} 79 \\ 3 \end{array} \dots\dots\dots \begin{array}{r} 79 \\ 3 \end{array}$$

$$G + a = \begin{array}{r} 252 \\ 53 \end{array} \qquad H + a = \begin{array}{r} 24 \\ 45 \end{array}$$

Logarithms.	Nat. Nos.	Logarithms.	Nat. Nos.
$f \dots\dots\dots - 10^{\circ} 23$			
$g \dots + 0^{\circ} 6513$		$+ 0^{\circ} 6513$	
$\sin (G+a) - 9^{\circ} 9603$		$\cos \dots - 0^{\circ} 4668$	
$(\tan \delta) \dots + 9^{\circ} 0354$			
		$- 0^{\circ} 1201 \dots\dots\dots 1^{\circ} 33$	
$- 9^{\circ} 6670$	$- 0^{\circ} 46$		
$A \dots + 1^{\circ} 2698$		$+ 1^{\circ} 2698$	
$\sin (H+a) + 9^{\circ} 7559$		$\cos \dots + 9^{\circ} 9147$	
$\sec \delta \dots + 0^{\circ} 0025$		$\sin \dots + 9^{\circ} 0329$	
$+ 1^{\circ} 0482 \dots\dots\dots + 11^{\circ} 17$		$+ 0^{\circ} 2374 \dots\dots\dots + 1^{\circ} 73$	
$\Delta a \text{ (in arc)} = + 0^{\circ} 48$			
$\Delta a \text{ (in time)} = + 0^{\circ} 032$		$i \dots - 0^{\circ} 7716$	
		$\cos \delta + 9^{\circ} 9975$	
		$- 0^{\circ} 7691 \dots\dots\dots - 5^{\circ} 88$	
		$\Delta \delta = - 5^{\circ} 47$	

$$\text{Hence the App. Right Ascens. of } \gamma \text{ Orionis} = \begin{array}{r} 5^{\text{h}} 16^{\text{m}} 13^{\text{s}} \cdot 84 \\ + 0^{\circ} 03 \text{ } \end{array} = \begin{array}{r} 5^{\text{h}} 16^{\text{m}} 13^{\text{s}} \cdot 87 \end{array}$$

$$\text{And the Apparent Declination} \dots\dots\dots = + \begin{array}{r} 6^{\circ} 11' 32'' \cdot 39 \\ - 5^{\circ} 47' \end{array} = + \begin{array}{r} 6^{\circ} 11' 26'' \cdot 92 \end{array}$$

2. Mean Time of Transit of the First Point of Aries.

The times in this column show the distance of the mean Sun from the meridian, at the instant when the true point of intersection of the ecliptic and equator (called the first point of Aries) is on the meridian of Greenwich; and as the distance of the first point of Aries from the meridian, at the instant the mean Sun is on the meridian, is denominated "Sidereal Time at Mean Noon," this may, by analogy, be termed the Mean Time at Sidereal Noon. It is the time which ought to be shown by a mean time clock adjusted to the Greenwich meridian, at the moment that a clock, adjusted to sidereal time, indicates exactly $0^{\text{h}} 0^{\text{m}} 0^{\text{s}}$. The use of this column is to facilitate the reduction of sidereal to mean solar time, with the help of the Table of Time Equivalents, given at pages 488, 489 of this volume, as has been already explained at page 496, under "Sidereal Time at Mean Noon."

3. Mean Equinoctial Time.

Mean Equinoctial Time signifies the Mean Time elapsed since the instant of the Mean Vernal Equinox. The numbers in these columns represent this time at every Mean Noon in Mean Solar days, and fractional parts of a day; they are reckoned from

the Mean Vernal Equinox of 1833, between January 1 and March $22^d \cdot 497078$, but from the Vernal Equinox of 1834, after March $22^d \cdot 497078$; for in the calculations of Equinoctial Time inserted in the Nautical Almanac for 1833, the Equinoctial Year has been assumed, according to Delambre's Solar Tables, equal to $365 \cdot 242264$ Mean Solar days; and as the Equinoctial Time corresponding to the Mean Noon of March 22, 1834, is $364 \cdot 745186$, it is evident that the Equinoctial Year of 1833-4 was completed, and that a new year commenced, at $0^d \cdot 497078$ after Mean Noon of the 22nd.

The fraction of the day at the head of the column is common to all the days of the Equinoctial Year. Thus, at Mean Noon of January 19, 1834, the Equinoctial Time is $302^d \cdot 745186$, and on January 20 it is $303^d \cdot 745186$, and so on until March $22^d \cdot 497078$, when the year terminates, and the fractional part of the day changes. At Mean Noon of March 23, 1834, the Equinoctial Time is $0^d \cdot 505048$, and this fraction is to be annexed to all the numbers in the column of days, from the period of the change until the equinox of 1835.

At the instant the Mean Sun arrives at the Mean Vernal Equinox, it must also be on some meridian, and this meridian will then have its Equinoctial time corresponding with its Mean Solar time, each of which will be $0^h \ 0^m \ 0^s$, and they will continue to correspond throughout the Equinoctial Year. At the end of the Equinoctial Year, the Sun will have passed this meridian 365 times, and have performed, besides, a certain portion of its 366th diurnal revolution, viz. $0^d \cdot 242264$; it will, therefore, have arrived at some other meridian, which will now, in its turn, reckon the Mean Equinoctial and Mean Solar time from the same point, and remain constant for the year. Thus the meridian from which the time is reckoned is shifting its position at the end of every year by $0^d \cdot 242264$, or $5^h \ 48^m \ 51^s \cdot 6$ to the eastward. Between the Vernal Equinoxes of 1834 and 1835 this "itinerant" meridian corresponds to Longitude $11^h \ 52^m \ 43^s \cdot 85$ East of Greenwich.

This species of time was first introduced in the Supplement to the Nautical Almanac for 1828, with a very full explanation of its nature and use. It there appears, that the use of Equinoctial Time is to afford an uniform date, which shall be independent of the different meridians, and of all inequalities in the Sun's motion, and shall thus save the necessity, when speaking of the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on January 5, 1834, at $5^h \ 47^m \ 0^s \cdot 0$, Mean Time at Greenwich; at $5^h \ 56^m \ 21^s \cdot 6$, Mean Time at Paris; or at $1833^y \ 288^d \ 23^h \ 40^m \ 4^s \cdot 07$ Equinoctial Time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression; whereas the latter expresses the period elapsed since an epoch common to all the world, and identifiable independently of all localities. By these means all ambiguities in the reckoning of time are supposed to be avoided.

To convert Mean Solar into Equinoctial Time: To the corresponding Greenwich Mean Time add the Equinoctial Time at Mean Noon of the same day at Greenwich, the sum will be the Equinoctial Time required. Thus, in the instance of the comet before alluded to, Paris being $9^m \ 21^s \cdot 6$ East of Greenwich, subtract this from the Paris time and we get $5^h \ 47^m \ 0^s \cdot 0$ for the corresponding Greenwich Time, to which add $288^d \cdot 745186$, or $288^d \ 17^h \ 53^m \ 4^s \cdot 07$, the Mean Equinoctial Time at Greenwich Mean Noon of January 5, and the sum will represent the Mean Equinoctial Time of the Comet's passage of its perihelion, viz. $288^d \ 23^h \ 40^m \ 4^s \cdot 07$ from the vernal equinox of the year 1833.

4. *Days of the Year.*

The numbers in this column indicate the complete days at mean noon which have elapsed since mean noon of January 1. Mean noon of January 1 is therefore reckoned 0, and 1 is found opposite to that of January 2, because at this instant one day has elapsed.

5. *Fractions of the Year.*

These fractions are the quotients found by dividing the numbers in the preceding column by 365.25. The days and fractions of the year are useful in Astronomical calculations.

Obliquity of the Ecliptic. (Page 266.)

The apparent inclination of the plane of the Ecliptic to that of the Equator is here given for every 10th day of the year, and continued to January 6 of the following year, marked December 37, for the sake of convenience. This inclination is ever varying, as well from the effect of its mean diminution, as of the nutation of the earth's axis: It is an important element in deducing the positions of the heavenly bodies, with reference to either of the planes, when we know their positions with respect to the other; as, for instance, in computing Right Ascensions and Declinations from Longitudes and Latitudes, or *vice versâ*. If the apparent Obliquity be required for any date not to be found in the Table, it may be obtained by simply taking the proportional part of the variation of the obliquity corresponding to the interval which comprises the given date. Thus, the apparent Obliquity on March 6, 1834, is $23^{\circ} 27' 39'' \cdot 41$; for the variation of the Obliquity for the ten days between March the 2nd and the 12th, is $0'' \cdot 13$, or $0'' \cdot 013$ for one day, and this being multiplied by 4, the number of days between the 2nd and the 6th, gives $0'' \cdot 05$, to be added to the Obliquity of March the 2nd. For most purposes, however, the Obliquity corresponding to the date in the Table nearest to the given date, is sufficient, as is evident from an inspection of the quantities.

The Sun's Horizontal Parallax. (Page 266.)

The Sun's Horizontal Parallax is the *greatest* angle under which the equatorial semidiameter of the earth would appear from the Sun's centre. It varies inversely as the distance, and the numbers in this column represent the values of the Parallax for every tenth day of the year.

The Parallax serves for reducing a Solar observation made at the surface of the earth to what it would be if made at the centre.

The Sun's Aberration. (Page 266.)

The progressive motion of light, combined with the motion of the Earth in its orbit, causes the Sun to appear in a different position from that which he really occupies, the true position being always in advance of the apparent. The numbers in this column indicate, for every 10th day of the year, the amount of aberration, or the quantity to be applied to the *true* longitudes of the Sun to obtain the *apparent*

longitudes. The longitudes derived from the Solar Tables include Aberration, and are therefore *apparent* longitudes, such as are contained in this Ephemeris. If the *true* longitude of the Sun be wanted, as is the case in finding the longitude of the Earth for the calculation of the Geocentric place of a body, the aberration must be applied with a contrary sign. Thus, on June 10, 1834, at Mean Noon, by *adding* $20''\cdot05$, the amount of aberration, to $79^{\circ} 3' 21''\cdot0$, the apparent longitude of the Sun, we obtain $79^{\circ} 3' 41''\cdot05$ for its true longitude.

Equation of the Equinoxes. (Page 266.)

The Solar and Planetary Tables furnish us with the places of the Heavenly Bodies referred to the Mean Equinox; but the true place of the Equinox at any time differs from its mean place, by a quantity which is termed the Equation of the Equinoxes; and the numbers here given show the value of the Equation for every 10th day of the year. They are to be applied, with their proper signs, to the Longitudes, reckoned from the Mean Equinox, to obtain the values with respect to the True Equinox.

If the Longitude of a body be given with reference to the true Equinox, as in this Ephemeris, and it be required to find its Longitude reckoned from the Mean Equinox, the Equation of the Equinoxes must be applied with a contrary sign. Thus, the longitude of the Sun, reckoned from the true Equinox, on July 10, 1834, at Mean Noon, is $107^{\circ} 40' 20''\cdot1$, and the Equation of the Equinoxes is $-16''\cdot47$; therefore, applying it with the contrary sign, the sum $107^{\circ} 40' 36''\cdot57$ is the Sun's Longitude from the *Mean* Equinox on that day.

The Equation corresponding to any date not found in the Table, may be obtained in the usual way by interpolation.

The Equation of the Equinoxes in Right Ascension in a similar manner enables us to find the *apparent* point of intersection of the Ecliptic on the Equator; and is necessary in computing Sidereal Time.

Mean Longitude of ♄'s ascending Node. (Page 266.)

The numbers in this column are the Mean Longitudes of the Moon's ascending Node, at Mean Noon of every 10th day of the year, reckoned from the Mean Equinox. The place for any intermediate day is easily found from the daily motion inserted at the foot of the column. The Longitude of the Node is necessary in the calculation of Nutation; it is also used to determine roughly the Stars which are likely to undergo occultation by the Moon.

Ephemeris of the Planets. (Pages 267 to 361.)

These pages contain the Geocentric and Heliocentric Places of the Planets, Mercury, Venus, Mars, Vesta, Juno, Pallas, Ceres, Jupiter, Saturn, and the Georgian.

The Geocentric Places are the places of the centres of the planets, as they would appear if seen from the centre of the Earth; the Heliocentric, such as they would appear from the centre of the Sun.

The positions of the larger planets are given for Greenwich Mean Noon of every day in the year. But those of the smaller Planets are given only for every fourth day, except for the month preceding and following their opposition, when they are given for *Mean Midnight* of each day.

The Geocentric Right Ascensions and Heliocentric Longitudes, are reckoned from the True Equinox. The Geocentric positions are *affected with aberration*, and are therefore *apparent* positions at mean noon.

By means of the positions of Mars, Venus, Jupiter, and Saturn, and particularly of Venus and Jupiter, which are frequently visible when the Sun is above the horizon, the Latitude, Time, and Variation of the Compass, may be found with nearly as much facility and accuracy as by the Sun.

The column headed "Meridian Passage" shows the Mean Time of the Planet's Transit over the meridian of Greenwich, and serves to find the Mean Time of Transit over any other meridian. As in the instance of the Moon before noticed, there are some days on which the planets do not pass the meridian; these are indicated by two asterisks (* *). If we refer to page 268, we shall find that Mercury does not pass over the Greenwich meridian on February 7th, and for a similar reason, viz., that the planetary day is here longer than the mean solar day, and commences so near, but previously, to the noon of the 7th, viz., $1^m \cdot 1$, as to want still 2^m of its completion at the termination of the 7th day. The planetary day, therefore, includes the solar day of February 7th: it begins *before* the solar day and ends *after* it, and cannot arrive at the meridian at any period of it.

Another phenomenon takes place in the case of the planets, which, however, does not occur with the Moon; it is that of two transits on the same day, which arises from the planetary days being sometimes *shorter* than the solar days, commencing *after* and terminating *before* the solar day, and thus falling entirely within it. This cannot be the case with the Moon, because the lunar day is always greater than the solar day. When two transits occur, the times of both are registered, as at p. 269, March 28, where it appears that Mercury passes the Greenwich meridian $2^m \cdot 2$ after Mean Noon of the 28th, and again at $23^h 55^m \cdot 5$ on the same day, or $4^m \cdot 5$ before the arrival of the following Mean Noon.

The positions of the planets for any time not given in the Ephemeris, and under any other meridian than that of Greenwich, is found by interpolation in the usual way. As an example: Required the Right Ascension and Declination of Jupiter at 6^h Mean Time of January 15, 1834, in longitude 30° west of Greenwich; also the time of Jupiter's passage over that meridian on the same day. The difference of longitude 2^h added (because it is west) to the given time, gives 8^h for the corresponding Greenwich time.

1. *For the Right Ascension.* The Right Ascension on January 15 is $1^h 40^m 54^s \cdot 80$, and on January 16 it is $1^h 41^m 13^s \cdot 88$; the difference $19^s \cdot 08$ is the variation of the Right Ascension in 24 mean hours; therefore, $24^h : 19^s \cdot 08 :: 8^h : 6^s \cdot 36$, the proportional part of the variation answering to 8^h ; and this proportional part added (because the Right Ascensions are increasing) to $1^h 40^m 54^s \cdot 80$, the Right Ascension at mean noon on January 15, gives $1^h 41^m 1^s \cdot 16$ for the Right Ascension required.

2. *For the Declination.* The Declination on January 15 is $N. 9^\circ 13' 17'' \cdot 7$, and on the 16th it is $N. 9^\circ 15' 25'' \cdot 6$, the difference, $2' 7'' \cdot 9$, is the variation in 24 hours; and the proportional part of this variation for 8^h is $42'' \cdot 6$, which, added to the Declination at noon on the 15th, gives $N. 9^\circ 14' 0'' \cdot 3$ for the Declination required.

3. *For the Meridian Passage.* Take the difference of the times of two consecutive transits, considering this difference as an acceleration or retardation of the Meridian Passage while the planet has passed over 24^h of longitude; and take the proportional part of it, due to the difference of meridians, for a correction to be applied to the Meridian Passage at Greenwich, bearing in mind that in east longitudes the passage

precedes that at Greenwich, when times are accelerated; and follows it, when they are retarded; and the contrary in west longitudes. In the present case Jupiter passes the meridian of Greenwich on January 15 at $6^h 2^m.1$, and on January 16 at $5^h 58^m.5$; the difference is $3^m.6$, therefore $24^h : 3^m.6 :: 2^h : 0^m.3$, the proportional part to be subtracted from $6^h 2^m.1$, (because the passages are retarded, and the longitude is west of Greenwich) which gives $6^h 1^m.8$, mean time at the given place, for the Meridian Passage. Where great accuracy is not required, as in predicting the time of passage, in order to be prepared for observing the altitude of the planet on the meridian, for the determination of latitude, this method will suffice.

Parallaxes and Semidiameters. (Pages 359 to 361.)

These are given for the noon of every 5th day of the year, and may easily be interpolated, if required for any proposed day, by simple proportion.

The "Equat. Hor. Par." represents the *greatest* angle at the planet; subtended by the equatorial semidiameter of the earth. It serves to find the Parallax in Altitude, Right Ascension, &c., for reducing an observation at the surface to the centre of the earth.

The Equatorial Semidiameters represent the angle subtended at the centre of the earth by the Equatorial Semidiameters of the planets. They serve to reduce an observation of the limb to the centre, where only one limb of the planet has been observed

Fixed Stars. (Pages 362 to 415.)

In these pages is given every particular relating to 100 principal fixed Stars. The contents of the Catalogue for January 1, 1830, (pages 362 to 367), are sufficiently explained at pages 366, 367, as are also those of the Catalogue for January 1, 1834, at page 370. Next (page 371) follow BESSEL's formulæ of reduction, and (pages 372 and 373) a table for the Reduction of Stars, independent of the Astronomical Society's Catalogue, an example of which is given at page 506.

The apparent places of α and δ Ursæ Minoris, are given for every day of the year, and those of the remaining 98 Stars for every *tenth* day. They indicate the positions which ought to be shown by perfect instruments at the time of their transit over the meridian of Greenwich; and, therefore, supposing the catalogue of mean places to be correct, they serve to detect any errors of the instruments.

The hours and minutes of Right Ascension, and the degrees and minutes of Declination, are placed at the heads of the columns as constants, and belong equally to all the numbers below them. This arrangement has rendered it necessary, in numerous instances, to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minute. Thus, the apparent Right Ascension of α GEMINORUM at page 389, on October 8, 1834, is registered $7^h 23^m 61^s.45$, and is to be read $7^h 24^m 1^s.45$. Again, the Declination of β Centauri (page 397), on July 10, is registered S. $59^\circ 33' 85''.31$, which signifies S. $59^\circ 34' 25''.31$. Also (page 387) the Right Ascension of δ Cephei on December 7 is $6^h 19^m 125^s.39$, and must be read $6^h 21^m 5^s.39$.

The small figures on the right hand of the vertical columns of seconds represent the

differences of the quantities above and below them on the left, or the variation of Right Ascension and Declination in 10 days, and serve to find, by proportion, the values for any intermediate day. As in the case of the Planets before explained, a Star will sometimes arrive at the meridian twice on one Mean Solar day. Wherever this occurs, an asterisk is placed opposite to the interval, and it signifies that the Star has passed the meridian 11 times in the 10 Mean Solar days, and consequently that the Right Ascension or Declination on any intermediate day is to be determined in these particular instances by taking $\frac{1}{11}$ th part, instead of $\frac{1}{10}$ th, for the daily variation in the interval. Thus, at page 385, we find in the instance of β TAURI, an asterisk opposite the interval between June 10 and 20, and a difference of $0^{\circ}.17$ opposite to the interval between the seconds belonging to those dates; we therefore infer that 11 transits have taken place, and that the daily variation of the Right Ascension is $0^{\circ}.015$.

The Mean places of the 100 Stars have not been all equally well determined. Many are now introduced for the first time, whose places can only be considered as approximately known. It has, therefore, been deemed expedient to distinguish the Standard Stars, that is, the Stars whose places may be relied upon, by small capitals, as β TAURI and δ ORIONIS, at page 385.

As a general rule, it is good to preserve all quantities given at certain intervals in a state fit for interpolation by simple proportion. This rule has been observed in the case of the apparent places of 5 Stars near the Poles of the Equator, which, when extreme accuracy is required, demand a further correction, depending on the term which involves 2ϵ . (See Remarks at page 413.) The apparent places do not include these corrections, on account of the rapid variation of the argument, viz. about 26° in a day, but they are given in a Table at pages 414, 415, for every degree of the Moon's Longitude, and may be readily applied, agreeably to the precept at the foot of that Table.

Moon-Culminating Stars. (Pages 416 to 453.)

Those Stars have been denominated Moon-Culminating Stars, which being near the Moon's parallel of Declination, and not differing much from her in Right Ascension, are proper to be observed with the Moon, in order to determine differences of meridians. This is effected by comparing the differences of the observed Right Ascensions of such a Star and the Moon's bright limb at any two meridians. If the Moon had no motion, the difference of her Right Ascension from that of a Star would be constant at all meridians, but in the interval of her transit over two different meridians, her Right Ascension will have varied, and the difference between the two compared differences will exhibit the amount of this variation, which, added to the difference of the meridians, shows the angle through which the westerly meridian must revolve before it comes up with the Moon; hence, and knowing the rate of her increase in Right Ascension, the difference of longitude is easily obtained.

For the determination of this variation, recourse has hitherto been had to actual observations made at different meridians, because any errors in the computed places of the Moon and Stars are thereby avoided; and the places given in previous Moon-Culminating Lists have been given merely with the view of indicating the times when the observations are to be made. In the present List, however, the Right Ascensions have been given with every possible degree of accuracy, so that they may be considered, at least approximately, in the light of corresponding observations made at Greenwich, and be taken to represent the actual indications of the Greenwich instruments, the same as though they had been already observed. The traveller has

thus an opportunity of rendering his observations immediately available for determining his longitude with considerable accuracy.

The *Right Ascension of the Moon's bright limb* is given for the lower as well as the upper Culmination, *l. c.* being put to denote the Lower Culmination, and *u. c.* the Upper Culmination; the former is also distinguished by *Italic letters*; the Roman numerals indicate the limb of the Moon with reference to its transit over the meridian. The Right Ascensions of the Moon's bright limb are given *for every day*, with a view to the more accurate determination of its variation when required. The Moon's age at the time of her upper transit, to the nearest tenth of a day, is inserted in a parenthesis in the column containing the Magnitudes of the Stars.

The numbers in the column "*Var. of ζ 's R. A. in 1 hour of Long.*" represent the variation in Right Ascension of the Moon's Limb during the interval of her transit over two meridians, equidistant from that of Greenwich, and *one hour distant* from each other. They have been deduced from the Right Ascensions of the *bright limb*, and therefore include the effect produced by the change of the semidiameter. They serve to determine the Longitude where the difference of meridians is not very great; but where the difference is considerable, and extreme accuracy is wanted, that variation in Right Ascension should be used which corresponds to the middle of the times between the observations, which is readily obtained by means of interpolation. They also serve to determine the Right Ascension of the bright limb at its transit over any other meridian. Thus: Multiply the difference of longitude between Greenwich and the given meridian, by the variation; and, accordingly as the given meridian is east or west of Greenwich, subtract or add the product to the Right Ascension at Greenwich; the result will be Right Ascension of the bright limb at transit over the given meridian: For example: On January 19, 1834, the Right Ascension of the Moon's first limb is $3^h 6^m 52^s.35$ at its upper transit at Greenwich, and the variation for one hour of longitude is $125^s.38$: Required the Right Ascension of the limb at its upper transit at Paris. Paris is $9^m 21^s.6$, or $0^h 15^m 6^s$, east of Greenwich; therefore, multiplying 0.156 by 125.38 , and subtracting the product 19.56 from $3^h 6^m 52^s.35$, we have $3^h 6^m 32^s.79$ for the Right Ascension at Paris.

The *Declinations* are given to the nearest minute, and are useful to point the transit instrument to the object.

Where an asterisk is placed opposite to a Star's name, it is intended to denote that the Star is favourably situated for observing its Declination along with that of the Moon in both hemispheres, with a view to the accurate determination of the Moon's Parallax.

The numbers in the column entitled "*Sid. Time of ζ 's Sem. pass. mer.*," express the Sidereal interval which the Moon's Semidiameter, at the time of transit at Greenwich, takes in passing the meridian, and therefore serve to determine the Right Ascension of the centre from an observed Right Ascension of either limb.

Occultations. (Pages 454 and 455.)

These pages contain a list of all Stars to the sixth magnitude inclusive, the Occultations of which by the Moon will happen when the objects are above the horizon of Greenwich; together with the Sidereal and Mean Time of the Immersions and Emersions, and the points on the circumference of the Moon's disc, where the Star, viewed with a telescope that inverts, will disappear and reappear. By "*Angle from N. Point,*" is to be understood the arc included between the Star when in contact and the point of intersection of the limb with a circle passing through the North Pole

and the centre of the Moon; and by "Angle from Vertex," the arc between the Star at contact and the point where a circle, passing through the zenith and the Moon's centre, intersects the limb; both as seen through an inverting telescope. These angles will be found very useful in observing Occultations of small stars with a telescope not mounted equatorially; and for the observation of an emersion, a knowledge of the angle is absolutely necessary to enable the observer to direct his attention to the point of the Moon's limb where the Star will reappear. In some instances, Occultations have been inserted which, taking place in, or near to, the horizon of Greenwich, are not visible there, but may be visible at places not far distant from Greenwich.

Elements for facilitating the Computation of Occultations of certain Stars by the Moon.
(Pages 456 to 468.)

The contents of these pages have already been briefly stated at page 468. The numbers represent certain quantities which enter into the calculation of an Occultation, but being referable to the Moon and Star, as seen from the centre of the Earth, are independent of geographical position, and serve equally for all places. It is only necessary to apply the difference of longitude from Greenwich to the Greenwich Mean Time of conjunction, to find the time of conjunction at any other meridian; and it is this time to which the positions of the Moon and Star here given will equally correspond.

Thus, the position of the Moon and θ Libræ, on January 5, 1834, at $11^h 48^m 48^s$, Mean Time at Greenwich, is the position at $11^h 58^m 9^s.6$ Mean Time at Paris, because Paris is $9^m 21^s.6$ east of Greenwich.

By "Limiting Parallels" are to be understood those parallels of latitude beyond which an occultation cannot *possibly* be visible.

Suppose an observer situate at a star, and having the Moon between him and the Earth, and that he could see the Moon projected on the Earth's disc, he would see it moving across the disc from west to east, covering a zone whose breadth would be equal to the apparent diameter of the Moon. Now, it is only within the limits of this zone that the Occultation of a Star by the Moon can be visible. To all the places through which the boundary lines pass, the Star will appear just to touch the Moon's limb; and that projected parallel of latitude, to which one of the boundary lines is a tangent, is one of the limiting parallels, while the intersection of the other boundary line with the circumference of the Earth's disc, determines the other limiting parallel.

"Limiting Parallels" are useful to indicate, without any further computation, whether at a given conjunction of a Star with the Moon, the positions are such as to produce an occultation in a given latitude, and thus to save considerable labour to the computer. Thus, suppose from the times of conjunction, at page 456, it were required to prepare a list of occultations for Greenwich, whose latitude is $51^\circ 28' 40''$ N.

On looking down the column of "Limiting Parallels," we reject at once the first five stars, because the Limiting Parallels do not comprise the parallel of Greenwich. On January 6, we see that ψ Ophiuchi will be occulted to all the parallels of latitude between 70° N. and 41° S., which include that of Greenwich; this Star would therefore be fixed upon for calculation, if no other considerations existed to cause its rejection. We observe, however, that it is of the fifth magnitude, and that the conjunction takes place near to noon: The intensity of sun-light would therefore prevent its being seen, and it is rejected in consequence. The next Limiting Paral-

lets having Greenwich between them, are 62° N. and 6° S., opposite to α Scorpii, on January 6; this star would therefore be selected. The time of conjunction in this instance, as regards sun-light, is not unfavourable: if, therefore, on further inquiry, the Star be found to be above the horizon of Greenwich, we should then commence the calculation. It appears, on reference to January 6, page 454, that this occultation is visible at Greenwich,

Eclipses of the Sun and Moon. (Pages 469 to 472.)

These pages contain all the particulars necessary for indicating the times, places, &c., on the Earth where these Phenomena will be visible; also the Elements which have been used in the calculations.

Phenomena. (Pages 473 to 475.)

Under this head are given the conjunctions in Right Ascension of the Planets with the Moon, and with each other, and with certain Stars; also the times when the Planets are in those parts of their orbits most favourable for observation, with a view to the more accurate determination of their elements; and other notices, chiefly of use to the astronomer.

Saturn's Ring. (Page 476.)

In this page are given the quantities which enable us to determine the position of the Ring of Saturn at intervals of 40 days throughout the year, and whether it be visible or not. The values of p show the position of the minor axis of the Ring with respect to a circle of declination, those of a and b the Ring's apparent magnitude, and a comparison of those of l and l' its visibility or otherwise. For the plane of the Ring to be visible, it is necessary that the Sun and the Earth should be elevated on the same side of it, which is the case during the whole of 1834. The circumstances which determine the invisibility of the Ring are, 1st. when its plane passes through the centre of the Sun, or $l' = 0$; 2nd, when it passes through the centre of the Earth, or $l = 0$, and at this time b is also $= 0$; 3rd, when the Sun and Earth are on different sides of the plane of the Ring, for the Earth in this case will have the unilluminated side of the Ring turned towards it.

Phases. (Page 477.)

This page contains two Tables, the first showing the *Mean Time of the greatest Libration of the Moon's Apparent Disc*; and the second, the *Illuminated portion of the Discs of Venus and Mars* at the middle of each month.

Tides. (Pages 478 to 481.)

The Mean Times of High Water at London Bridge are here given for every day of the year, on the assumption that the time of high water at full and change days, or the *Establishment of the Port*, is $9^h 7^m$. The first high tide which happens after Mean Noon of any day is inserted in the 1st column, and the second in the 2nd column. Where a line (—) is inserted, it indicates that there is only one high tide on that day. Thus, on January 6, there is only one high tide: it occurs at $11^h 37^m$, but the succeeding high tide does not take place until 7^m after mean noon of January 7.

The times of high water at full and change of the Moon, as given at pages 480 and 481, are reckoned from *Apparent Noon*: They represent the *Establishments of the*

Ports, that is, the *actual times* of High Water when the Moon passes the meridian at the same time as the Sun; or the *intervals* between the times of Transit of the Moon and the times of High Water on full and change days. They have been selected from various works on navigation, and serve to determine the time of high water on any other day at those places in the usual manner. The time of high water, however, at any of the places contained in this table may be deduced for every day from the time of high water at London Bridge, by taking the difference between the *establishment of the port* at each of these places, and the *establishment of the port* at London Bridge, viz. $2^h 7^m$, and considering this as a constant quantity, representing the difference of the tides between London Bridge and the several places, to be *added* to or *subtracted* from London Bridge tides, according as the establishment of the port at the place is *later* or *earlier* than that at London Bridge. Thus the establishment of the port at Aberdeen is $0^h 45^m$, and at London Bridge $2^h 7^m$; the difference is $1^h 22^m$, and the Aberdeen tide precedes that at London: therefore, by *subtracting* $1^h 22^m$ from the London Bridge tides, we obtain the Aberdeen tides in mean time. On February 18, 1834, the first high water at London Bridge occurs at $8^h 17^m$, which being diminished by $1^h 22^m$, gives $6^h 55^m$ for the corresponding tide at Aberdeen, and so of other places.

Table, showing the Correction required on account of Second Differences in finding the Greenwich Time corresponding to a reduced Lunar Distance. (Page 482.)

The use of this Table has been sufficiently explained by the Example given at page 501.

Tables for determining the Latitude by Observations of the Pole Star out of the Meridian. (Pages 483 to 485.)

These Tables serve to determine the Latitude from an observation of the Altitude of the Pole Star out of the Meridian. The method of using them is as follows:

From the observed altitude, when corrected for the error of the instrument, refraction, and dip of horizon, subtract $1'$.

Reduce the Mean Time of Observation at the place to the corresponding Sidereal Time, by the Table given at page 486. (See *Tables of Time Equivalents*, page 517.)

With the Sidereal Time found, take out the "*first correction*," with its proper sign. If the sign be $+$, the correction must be *added* to the reduced altitude; but if it be $-$, it must be *subtracted*: in either case the result will give an Approximate Latitude.

With this Approximate Latitude and the Sidereal Time of observation, take out the "*second correction*," and with the day of the month and the same Sidereal time, take out the "*third correction*." These two corrections, *added* to the Approximate Latitude, will give the Latitude of the place.

EXAMPLE.

On March 6, 1834, in Longitude 37° W. at $7^h 43^m 35^s$ Mean Time, the altitude of the Pole Star, when corrected for the error of the instrument, refraction, and dip of the horizon, is $46^\circ 17' 28''$.

Mean Time	-	-	-	-	^h	^m	^s
					7	43	35
Diff. Long. 37° in time	-	-	-	-	2	28	0
Greenwich Mean Time	-	-	-	-	10	11	35

EXPLANATION.

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Sidereal Time at Greenwich Mean Noon	-	22	54	57	
Mean Time at Place	-	-	-	-	7 43 35
Acceleration (Table, p. 486) for 10 ^h 12 ^m	-	-	-	-	1 41
Sidereal Time of Observation	-	-	-	-	6 40 13
Corrected Altitude	-	-	-	-	46° 17' 28"
Subtract	-	-	-	-	1 0
					46 16 28
With Argument 6 ^h 40 ^m 13 ^s , First Correction	-	0	8	26	
					46 8 2
Arguments, 46°	}	Second Correction			
6 ^h 40 ^m					
Arguments, March 6, 1834.	}	Third Correction			
6 ^h 40 ^m					
Latitude of the place	-	-	46	10	42

which agrees with an actual trigonometrical computation.

The *Tables of Time Equivalents*, given at pages 486 to 489, are useful for converting Mean Time into Sidereal Time, and Sidereal into Mean Time, agreeably to the example annexed to each table. They will serve also for Tables of Acceleration and Retardation, by taking the difference between each argument and its equivalent. Thus, in the Table at pages 486 and 487, the *excess* of the sidereal time equivalents above the arguments of mean time show the *acceleration* of sidereal on mean solar intervals; and in the Table at pages 488 and 489, the *defect* of the mean time equivalents, as compared with the arguments of sidereal time, indicate the *retardation* of mean on sidereal intervals.

The concluding Table at page 490 contains the *Latitudes and Longitudes of the principal Observatories*. This Table will, it is hoped, be gradually perfected and completed by communications, from each astronomer, of the latest and most accurate determination of his geographical position.

ERRATA

IN THE NAUTICAL ALMANAC FOR 1834.

January and February, } *for* Diff. Dec. *read* Diff. Dec.
 Pages V. to XII. } *for* 10^l *for* 10^m

Page 64, March 26, *omit* .2 on the right-hand of Jupiter.

Page 360 under Jupiter, *for* Equat. *read* Polar
 Semid. Semid.

Page 495 line 18 - - - *for* REPRESENTS *read* represents

ERRATA, detected in the following Tables,

(Continued from p. xv. of the Supplement to the Nautical Almanac for 1833.)

I.—*Nouvelles Tables Astronomiques et Hydrographiques, &c.* Par V. BAGAY.
Edition Stéréotype. Paris, 1829. 4to.

Log. des Nombres Sexagésimaux. Table XXIV.

Page 79 at the top, *for* — L 24^h = 5.36452 *read* — L 12^h = 5.36452
 81 7^h 27^m 6^s — 956 — 856

Table des Logarithmes des Sinus, Cosinus, &c.

Page 554 Sinus 39° 58' 47" *for* 8848 *read* 8843
 596 Cosinus 46° 32' 0" — 9.960 — 9.860

II.—*Tables Écliptiques des Satellites de Jupiter.* Par M. DELAMBRE. Paris, 1817.

Premier Satellite, Table II. opposite to Avril, and under K, third line
 from the top,

for 344 *read* 244

Second Satellite, opposite Arg. D 50, sixth line from the top,

for 20.8 *read* 20.4

Troisième Satellite, Table des Demi-Durées, last Différ. N ±

for 334 *read* 434

Quatrième Satellite, Perturbations for 1835, 1, second line from the top, under
 Différence, *for* 3.5 *read* 3.0

III.—*Mathematical Tables, &c.* By CHARLES HUTTON, LL.D. *The 7th Edition,*
 by OLINTHUS GREGORY, LL.D. London, 1830. 8vo.

Page 6	Number 10282	} Mark over the 4th figure of the Log. is omitted.
7	10966	
7	10997	
8	11459	
10	12335	<i>for</i> 392 <i>read</i> 1392
13	13968	— 342 — 1342
13	13997	— 350 — 0350
284	Cotang. 8° 24'	<i>for</i> 6.7919867 <i>read</i> 6.7719867

ERRATA (continued).

519

IV.—*Tabulæ Veneris, &c.* Auctore BERNHARDO DE LINDENAU.
Gothæ, MDCCCX. 4to.

Page VII. Tabula II. { 1820 for 10° 16' 58' 46" read 10° 8' 58' 46"
under Aphelium, { 1822 — 17° 0' 20" — 9° 0' 20"

V.—*Investigatio Nova Orbitæ a Mercurio, &c.* Auctore BERNHARDO DE LINDENAU. Gothæ, MDCCCXIII. 4to.

Tables II and III. Pages V to IX, add 31" to each of the quantities in the column headed "Nodus."

For Table XIX. Page XL. substitute the annexed.

Arg. V. 2 ♀ — 3 ♀			Arg. V. 2 ♀ — 3 ♀			Arg. V. 2 ♀ — 3 ♀			Arg. V. 2 ♀ — 3 ♀		
N.	Aeq.	Diff.	N.	Aeq.	Diff.	N.	Aeq.	Diff.	N.	Aeq.	Diff.
0	11	+4	120	22	+4	240	29	+1	360	28	—3
5	15	+4	125	26	+2	245	30	—1	365	25	—3
10	19	+4	130	28	+1	250	29	—2	370	22	—4
15	23	+3	135	29	0	255	27	—3	375	18	—5
20	26	+2	140	29	—1	260	24	—4	380	13	—4
25	28	+1	145	28	—2	265	20	—4	385	9	—3
30	29	0	150	26	—3	270	16	—4	390	6	—3
35	29	—1	155	23	—4	275	12	—4	395	3	—2
40	28	—3	160	19	—4	280	8	—4	400	1	—1
45	25	—3	165	15	—4	285	4	—2	405	0	+1
50	22	—4	170	11	—4	290	2	—1	410	1	+2
55	18	—5	175	7	—3	295	1	0	415	3	+3
60	13	—4	180	4	—3	300	1	+1	420	6	+4
65	9	—3	185	1	—1	305	2	+2	425	10	+4
70	6	—3	190	0	+1	310	4	+3	430	14	+4
75	3	—2	195	1	+1	315	7	+4	435	18	+4
80	1	—1	200	2	+3	320	11	+4	440	22	+4
85	0	+1	205	5	+3	325	15	+4	445	26	+2
90	1	+2	210	8	+4	330	19	+4	450	28	+1
95	3	+3	215	12	+5	335	23	+3	455	29	
100	6	+4	220	17	+4	340	26	+3	460	29	
105	10	+4	225	21	+3	345	29	+1	465	28	
110	14	+4	230	24	+3	350	30				
115	18	+4	235	27	+2	355	29				
120	22		240	29		360	28				

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** * The large Roman Numerals indicate the Page of each Month;
the small, the Page of the Preface; and the Arabic, the Page of the Book.*

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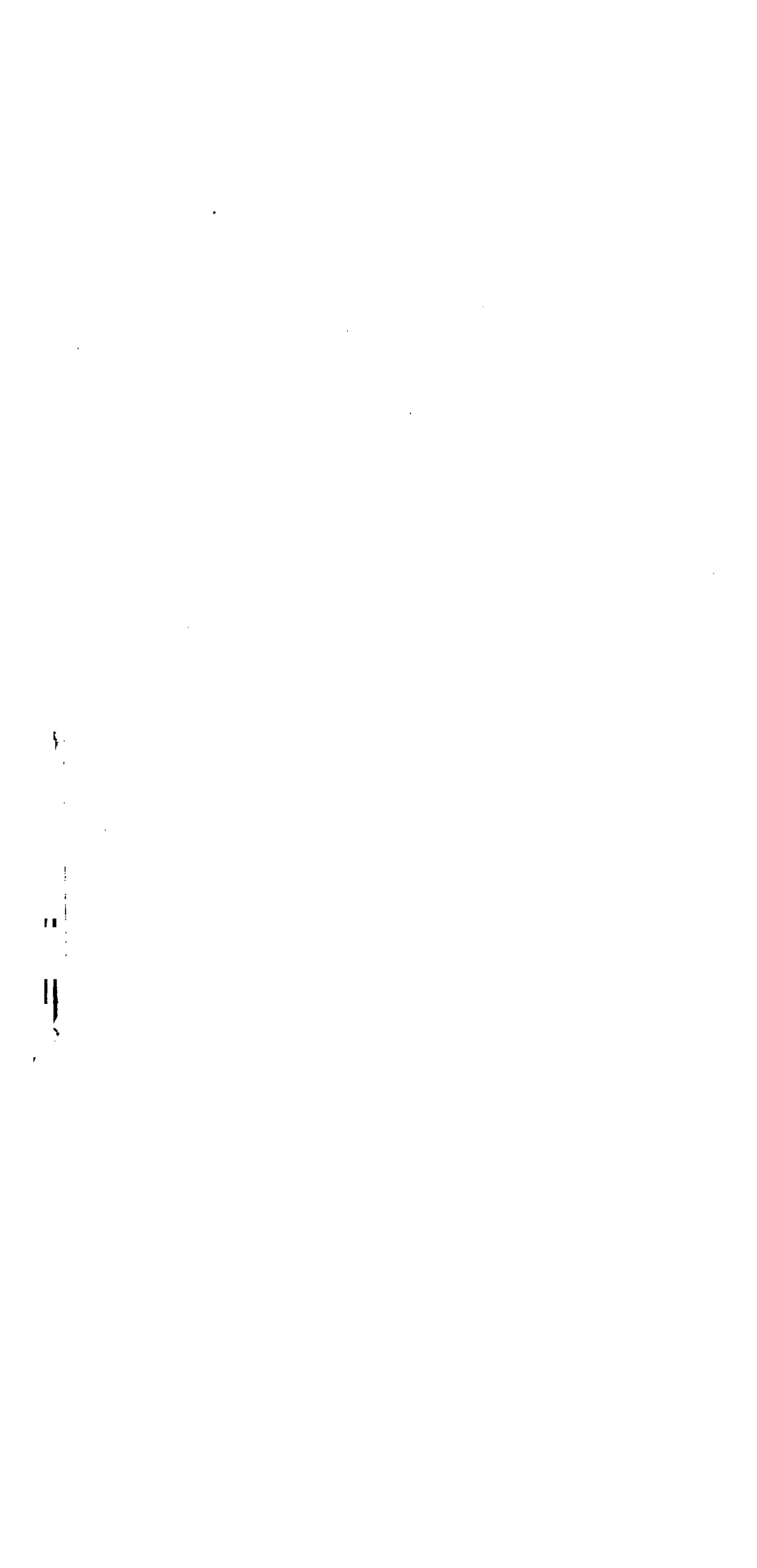
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